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DECEMBER 1991

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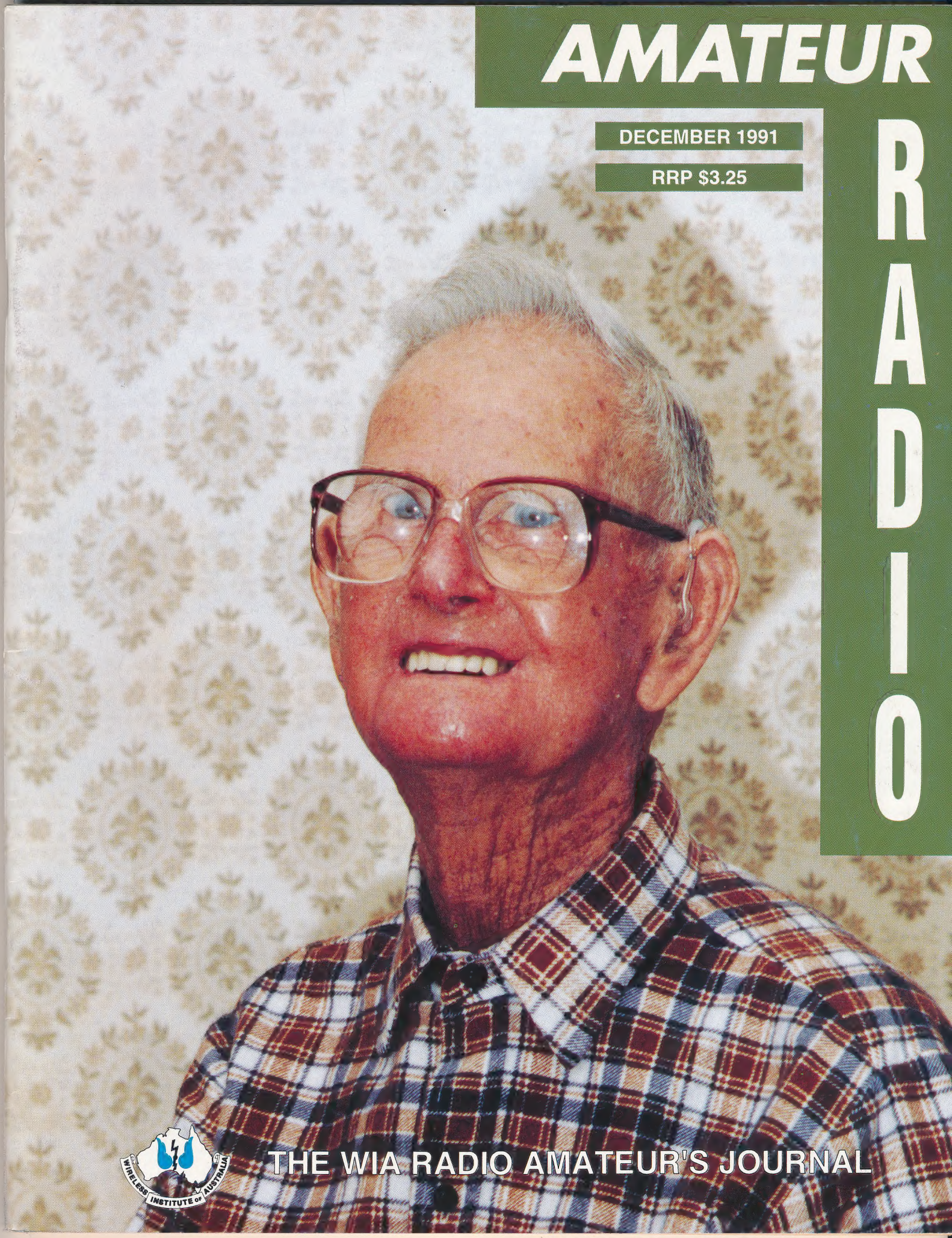
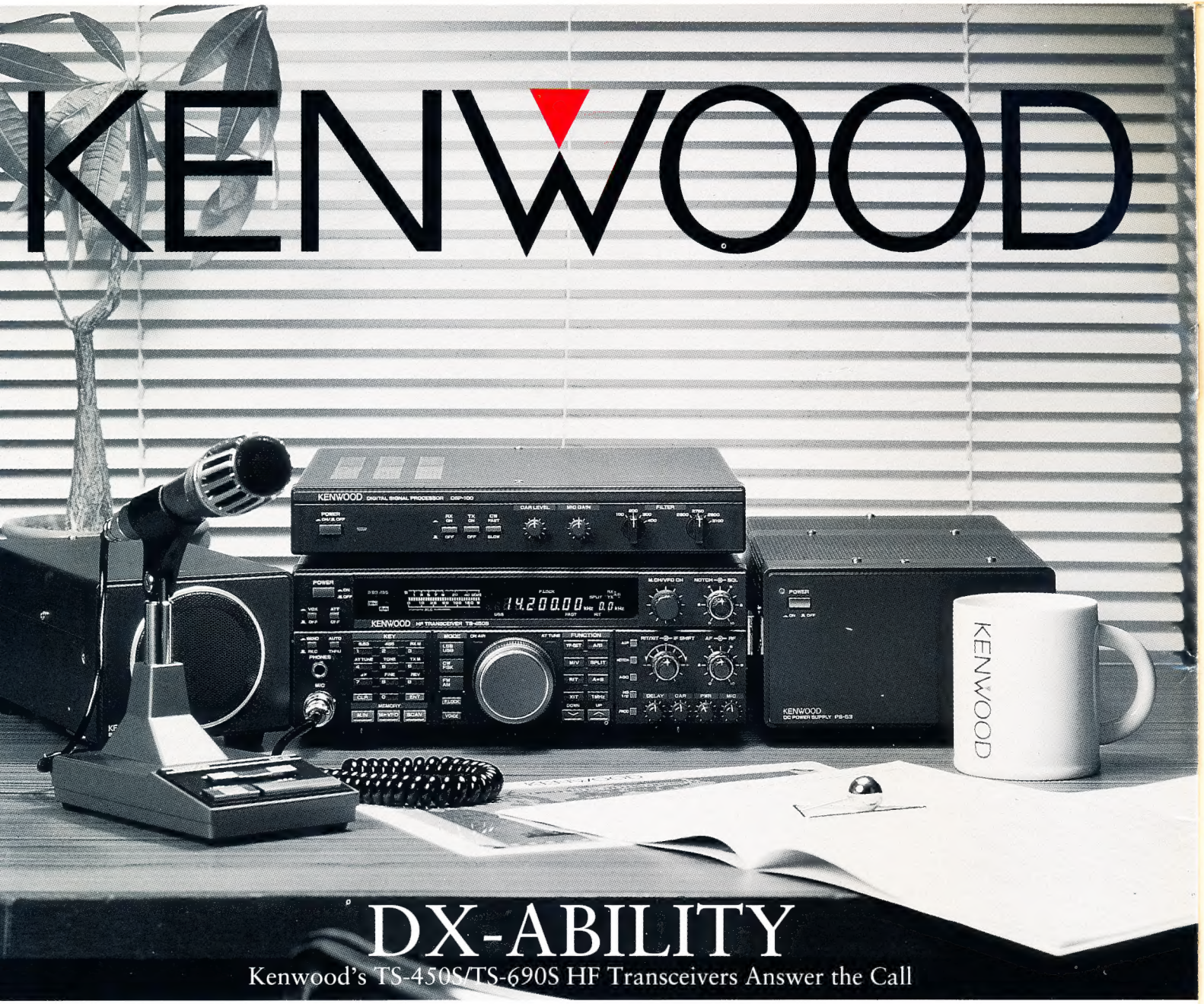


THE WIA RADIO AMATEUR'S JOURNAL



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AMATEUR RADIO

THE WIA RADIO AMATEUR'S JOURNAL

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Cover

Our cover this month depicts Harry Angel VK4HA. Harry, who is still an active amateur, has his 100th birthday on 14 December. Are there any other active amateurs on earth of this age or is Harry in a "Century Club" of his own? For his profile, see "A Centurion Among Us" on page 32. Photo: David Jones VK4KLV.

EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

Quart Into a Pint Pot

I defy anyone to produce a metric version of the above title with anything even approaching the same impact. "Litre into a half-litre etc" just doesn't seem to mean the same. In our case it means the task which faces Graham and me on what is usually the first Monday of every month (but sometimes the second), when we have to decide what material is to go into the next issue.

We thought many of you who support the WIA by sending in articles, letters, news items and so on might like to know the factors which determine how long before you will see it in print. Regular columnists are different. In exchange for the chore of having to put together a column each month they have the privilege of knowing when it will appear. Letters usually will get into "Over to You" within the month (unless they're too long or might stir up a hornets' nest, as discussed last month). But articles, either technical or of general interest, are usually a problem.

Technical articles usually require drawings. Few authors are competent as draftspersons. Those who are are doubly welcome, but most have to be sent out to Vicki (the drawings, of course, not the authors!).

All technical articles are carefully edited, perhaps even modified, to ensure they don't conflict too violently with the laws of physics. All this takes time, and when space is hard to find it can be six months or more before the article is printed; so please don't lose heart in the meantime.

General interest articles introduce another problem: topicality. Unless printed within a month or two of the event described, they become "stale". But there are already 20 or so articles waiting in the queue, and we can only fit in perhaps four or five each month. Which ones make it and which do not?

No matter what we poor editors do, someone is going to be upset. The only hope is to find more space. How? More pages? Only if there's enough advertising to pay for them (one page of advertising pays for about three pages of normal copy). Smaller type? We've been through that before. As is, most readers have no reading problem. Smaller, and the complaints start coming in. And, for good technical reasons, we can't just add one or two extra pages. We have to go from 56 to 64 in one jump. This month, as a Christmas bonus, we can do it, but it may be several months before we can do it again. Patience, please, people!

Finally, just to complicate our lives still further, all these factors vary cyclically. We are short of material; appeal for articles; you all respond magnificently; now there's too much! Delay, some authors disgruntled, stop writing; material runs low; back to square one! Typical period of the cycle seems to be about two years. In more ways than one, our fate is in your hands! And it's much better to have surplus articles, as at present, rather than not enough.

So, on that happy note, let's desist from all these complaints. Thank you all very much indeed for all your support through the year. May you all have a very merry Christmas and a happy 1992.

ar

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society — Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union
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WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

Quarterly Federal Meetings

The weekend of 26th - 27th October was the time for another of the regularly quarterly meetings of the WIA Federal Council and Executive. These weekends follow a fairly standard pattern. The idea is to have the complete Federal Council and Executive present for the two days to allow full discussion of matters that have arisen during the previous three months, progress reports on extended projects and consideration of future policy and planning.

As members know from the list published on page 2 of each issue of Amateur Radio magazine, each Division appoints a Federal Councillor who is the Division's representative on the WIA Federal Council, the governing body of the WIA. Each Federal Councillor also becomes a member of the Executive, the body charged with carrying out the policy and directions of the Council. In addition to the seven Federal Councillors, the Executive includes five other members and the WIA Federal President.

Between quarterly meetings, the small group of Executive members located in Melbourne keeps the machinery going and deals with the day-to-day administration of Federal affairs.

If there are WIA policy motions received on notice from Divisions, or policy recommendations come from the proceedings of the Executive deliberations, an Extra-ordinary Federal Council convention is convened to allow the Council to consider this business. What this means is that there are usually two meetings scheduled for the weekend. First of all the Executive meeting, at which all members of Executive may vote, and the Federal Convention, at which only the Federal Councillors vote as representatives of their Divisions.

In addition, at the last two weekend meetings, the Federal Councillors have taken the opportunity to have a short informal group discussion, without the Federal President, or non-Federal Council members of the Executive, present in order to compare Divisional views on current or future agenda items. This informal meeting is also attended by those Divisional Alternate Federal Councillors who are present for the weekend proceedings.

The meeting procedure follows a fairly standard pattern. After dealing with the minutes of the previous meeting time is allocated for reports from the Executive members on any specific individual activities and from the General Manager on matters relating to the operation of the

WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts	1992 Fees	
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer	Christopher Davis Jan Burrell Ken Ray	VK1DO VK1BR VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO B ox 1066) Parramatta 2124) Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours	Roger Henley Bob Lloyd-Jones Bob Taylor Mon-Fri 1100-1400 Wed 1900-2100)	VK2ZIG VK2YEL VK2AOE	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours 0830-1530 Tue & Thur	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3XLZ	1.840MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura, 146.700 FM(R) Mt Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) (G) (S) (X)	$72.00 $57.50 $44.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President Secretary Treasurer	John Aarsse Bob Lees Eric Fittock	VK4QA VK44ER VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Rowland Bruce John McKellar Bill Wardrop	VK5OU VK5BJM VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.00 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Secretary Treasurer	Cliff Bastin John Farnan Bruce Hedland-Thomas	VK6LZ VK6AFA VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525MHz Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 3.560 at 1930 hrs	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne Tas 7015	President Secretary Treasurer	Tom Allen Ted Beard Peter King	VK7AL VK7EB VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$67.00 $53.65 $39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).						

Note: All times are local. All frequencies MHz.

Membership Grades
Full (F) Pension (G)
Needy (G) Student (S)
Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times

The President's Christmas Message

Everywhere we look these days we see the effects of change and uncertainty. It would seem the only thing we can say with any certainty is the rate of change is accelerating. There are many changes that are currently affecting our hobby — let us think about some of them.

Firstly, the major changes in the examination system — the second of such changes in the space of a couple of years. Hopefully, the department will be able to leave the current arrangements in place for quite a few years, and things will settle down again. Secondly, take a browse through the advertising pages of *AR* and, as you do, think what things were like a few years back — perhaps the most noticeable is the replacement of analogue displays with digital readouts. Look also at the options that are now available — what was a "special extra" a few years ago is now a standard item.

So, what can we conclude from this? I would like to suggest a couple of things. First, change is sometimes difficult and painful, but this does not mean it is a bad thing — only that the new process may take us a little while to adjust to it. During this time there is often the need for some fine tuning — feedback from the users that will improve the process. Second, the changes can bring us benefits and make life easier.

Where does that leave us? Well, we can take the easy way out. We can get through life without ever expressing an opinion, without ever generating a new thought. We can accept the benefits and never seek a new challenge. In other words, we can stay in our "comfort zone", as the sociologists like to call it.

Or we can follow in the tradition of the amateur service. If those first amateurs had never painstakingly set up the tests necessary to test the ability of "short waves" to communicate around the world, then where would we be? If succeeding generations of amateurs had not done their bit to push back the frontiers and, in so doing move, out of their comfort zones, then amateur radio — and indeed radio technology as a whole — might still be a pale shadow of what it is today.

This is all very well as a piece of philosophy, but what does it do for us here and now? Well, there are lots of ways of pushing back the frontiers. Some frontiers are technical, and we have many very capable amateurs in our ranks who are doing just that. Some of the frontiers are administrative, and here we are fortunate to have many amateurs who have assisted in preparing papers for the recently held IARU Region 3 Conference. It is a tribute to their ability that many of these papers were accepted with minimal changes. Of particular importance here was the paper "Australian Guidelines for Packet Radio Operation". Some of the frontiers are regulatory, and it is clear from government activities in other related areas (eg telecommunications) that policies are being formulated on the deregulation of the radio spectrum. Again, the "crystal ball gazers" in our ranks are doing their best to formulate ideas on how we should react to such proposals.

So what part can an individual radio amateur play? By looking at the hobby with his or her own eyes and skills and then deciding which part of the frontier can be pushed back. How to do this? Easy! Don't stay in your comfort zone — participate in your local club or special interest group activities. Participate in your WIA Division's activities. And, most important of all, participate in the usage of the radio spectrum — after all, that was why we all got our licences in the first place, wasn't it? But in all these things, try to move out of your comfort zone. As you relax over the Christmas break, think of something new you can do for the hobby of amateur radio in 1992! Perhaps you could look on it as a way of "repaying" the enjoyment you have had from the hobby.

On behalf of the Federal Council, the Federal Executive and the General Manager and staff of the Federal Office, I would like to wish you and your families the compliments of the season, and may 1992 be a challenging year for you!

PETER GAMBLE VK3YRP
FEDERAL PRESIDENT
ar

GAMBLE (Sessions). — Lea and Peter proudly announce the arrival of their son:
Matthew William
(3.9kg-8lb 10oz) on 30 Sept 1991 at St George's Hospital, Kew. Mother and son both doing well.

Executive Office. Inspection and discussion of the financial reports and recruiting statistics for the past months generally take some time. Inspection of the list of non-routine correspondence generally allows a number of items to be deleted as completed as members of the Executive, the President, or the General Manager report on the action that has been taken. All other incomplete business, such as motions to Council, resolutions of Executive or DoTC action items are inspected and progress is reported, so completing the routine part of the meeting and leaving the remaining time for the major items on the agenda.

The Saturday evening is usually devoted to a meal followed by informal discussion of future agenda items or matters affecting the WIA or the Executive. No votes are taken, and no records kept, but this session allows any member to introduce a topic that may not have been raised otherwise, or to air views or grievances. It is noticeable that these sessions are becoming still less formal, but more productive.

The agendas for these most recent quarterly meetings were unusually extensive because of the need for consideration of the Federal budget for 1992, and the determination of the Federal component of the membership subscription, in addition to the presentation of reports from a number of sub-committees charged with specific tasks.

Executive Meeting

Following are some of the items discussed at the Executive Meeting:

WARC 92

David Wardlaw reported on the current status of the Australian preparation for this major event. The last of the Australian Preparatory Group meetings has been held, although there are still some CCIR and Delegation meetings to be attended.

After extensive discussion on the merits, financial aspects, and implications of the WIA sending two delegates to Torremolinos in February for the WARC 92, it was eventually resolved that policy should be to recommend two persons to attend, this to be reduced to one only if that should become necessary for any reason. The two delegates to represent Australian radio amateur

service will be David Wardlaw VK3ADW and Ron Henderson VK1RH.

Region 3 IARU Conference Report

Ron Henderson, as leader of the WIA delegation to the IARU Region 3 Conference in Bandung in October this year, tabled a report of the group's activities. Members of the delegation participated in both general and small-group events. Amongst other things, input was provided on packet protocol (the Australian guidelines were adopted as the Region 3 Guidelines almost unaltered - see elsewhere in this WIANEWS), bandplanning, band allocations, and direction-finding.

All of the four WIA delegates who attended felt that it had been worthwhile, and returned with many post Conference tasks to complete. A full report of the Conference will be published shortly.

50 MHz Beacon Policy

A report and recommendations from John Martin VK3ZJC, the Federal Technical Advisory Committee (FTAC) co-ordinator, on the policies to apply to frequencies and locations of the 6 metre beacons was received and discussed in detail before being recommended for adoption by the Federal Council. The final document differed very little from the details published on page 48 of the October 1991 issue of Amateur Radio magazine.

Examinations

The meeting studied the report on the WIA Exam Service presented by the General Manager. In accepting the report the Executive noted its appreciation of the time, energy and effort expended by the General Manager in achieving a functioning examination system in such a short time. Although at this stage costing can only be done on estimates based on limited information, preliminary calculations indicate that the setting up costs should be recovered within the specified three year period, and the WIA Exam Service should be self-funding. The opportunity was taken to ensure that all attending the meeting were fully informed as to the functions and responsibilities of the WIA Exam Service.

In addition the Executive approved the formation of a Committee to be responsible for review and expansion of the examination question banks.

Revision of DoTC Licence Conditions

As a response to discussions with the Licensing Section of DoTC in Canberra, the WIA has been considering ways in which further deregulation of the Amateur Service could be achieved. Two papers relating to deregulation were presented. John Martin VK3ZJC, the WIA FTAC Co-ordinator, after conferring with the Divisional TACs and repeater user groups, recommended a streamlining of the regulations concerned with repeaters, beacons, packet and RTTY.

Kevin Olds VK1OK, as chairman of a sub-committee examining the DoTC regulations brochures, recommended further reductions in the regulations relating to repeaters, beacons, packet and RTTY, as well as to club stations, and station identification.

Both reports were accepted by Executive and will form the basis of submissions to the DoTC.

WIA Objectives for 1992-3

A paper tabled by Ron Henderson VK1RH, opened discussion on the goals and objectives of the WIA for the immediate future. The paper grouped the activities of the WIA Federal body into the major fields of Publications, Executive Office, and International Representation. Although in most of the field subdivisions the objectives were mainly to continue or upgrade the current activities, it was felt that such a consideration of the range of activities of the Federal Body is necessary to ensure that some activities are not being neglected by over-emphasis on other activities.

1992 Federal Budget

Divisions were notified at the Annual Federal Convention held in April 1991 that the Federal budget for 1992 would be set at the October meeting, and were asked for input.

This topic is always contentious, as Divisional views vary considerably. While the idea of uniform membership fees for all Divisions has been advocated for several years, it has become increasingly apparent that this goal will not be achieved in the short term, as the services provided by the Divisions also vary greatly.

Keeping in mind the current state of the national economy, the Divisions agreed that increases in the subscriptions should be minimised, resulting in an overall increase of less than the CPI increase. It is not, of course, possible to avoid some increase, as so many of the costs of service to members are not under the control of the WIA. In addition, the threat of Australia Post to substantially modify or abolish the Category B postal rate must be considered, as this action could double the cost of mailing Amateur Radio magazine to members.

Full details of the 1992 membership fees appear in the right hand column of the WIA Divisions directory appearing on page 3 of this issue of Amateur Radio magazine. Members will note that the slight increases are all below CPI, clearly indicating the continuing high level of financial management practised by the WIA.

4266 members will receive membership renewal notices in the post early in December.

Please renew your membership promptly by cheque or credit card. If renewing by authorising the WIA to debit your plastic card, please carefully check the credit card numbers when you write them on the membership renewal slip, and ensure that you have signed the authority before posting it to the WIA Executive Office.

Incidentally, receipts are not issued for membership renewals unless your remittance is accompanied by a request for a receipt and a stamped, self addressed envelope.

Options for Publication of Amateur Radio

In response to extensive discussions at a number of meetings, Ron Henderson tabled a short paper summarising the possible options for the future of Amateur Radio magazine. The meeting agreed that the idea of merging the magazine with a commercial electronics magazine is not feasible from an economic viewpoint, nor would it be in the interest of members, but accepted that there is room for upgrading the standard of the present magazine. Roger Harrison was charged with researching a range of possible options and will report back on costs and feasibility at the next quarterly meeting.

Shutdown of Repeaters

Peter Maclellan VK3BWD, tabled a paper recommending guidelines for determining the circumstances under which repeaters should be shut down. After discussion, the paper was accepted (see full details elsewhere in WIANEWS).

EXTRA-ORDINARY FEDERAL CONVENTION

This quarterly meeting of the Federal Council was the busiest for quite some time. Matters of policy decided, in addition to those items mentioned above as Executive recommendations to Federal Council, included:

Repeater Linking Standards

The Federal Council adopted the repeater linking standards (as circulated at the 1991 Federal Convention by the VK4 Division) as a set of interim guidelines. The full guidelines are published elsewhere in this issue of Amateur Radio magazine, and will be reviewed at the 1992 Annual Federal Convention.

WIA Federal Structure

After considerable discussion, the Federal Council passed several motions which directed that no further efforts and resources be expended in pursuit of a national model for the WIA, that consideration of an additional, Commonwealth Division be abandoned, and that the roles of the Federal Council and Executive be reviewed.

Reciprocal Licensing with Spain

Notification has been received from the DoTC that the Australian Embassy in Madrid has finalised the Reciprocal Radio Amateur Licensing Arrangement with Spain, to take effect from 60 days after the 3rd October 1991.

Australian licensees holding AOCP, AOLCP or NAOCP will be entitled to Grade A, Grade B or Grade C licences respectively. Of course, the Spanish regulations must be observed when operating in Spain.

This reciprocal licensing arrangement took over six years to put in place, and is an example of the protracted diplomatic negotiations that are often necessary in these matters.

Executive Office on Air

Through the generosity of Kenwood Electronics Australia Pty Ltd, and Mr Joshua Mui, the Federal Body of the WIA has recently been presented with a TM-231A 2 metre transceiver for use in the Executive Office. When a suitable power supply is arranged, the set will be ready for use.

Let me hasten to assure members that this does not mean that the office staff will be spending their days on the repeaters, or that 2 metres will supersede the regular communications channels of telephone, fax and mail.

The WIA wishes to record its thanks for Kenwood's donation.

Packet Radio Guidelines

The WIA submitted a draft proposal for packet radio guidelines to the recent IARU Region III triennial conference in Indonesia. This proposal was adopted by Region III, and delegates from the other regions showed great interest.

At the October meeting of the WIA Federal Council these packet radio guidelines were formally adopted as the Australian Packet Radio Guidelines. Here they are:

<u>Guidelines for Packet Radio Operators</u>

1. Amateur radio takes pride in being self-regulated. Packet Radio Operators should continue this tradition.
2. Packet Radio Operators, like all Amateur radio Operators, should observe published Band Plans.
3. A Packet Radio Operator should not send the following traffic, either direct or via mail boxes:
   a. All advertising for selling, buying or trading goods, including amateur equipment (except if permitted by local regulations);
   b. All statements on propaganda or political or religious subjects;
   c. All inappropriate language, as, for instance, the use of swear words, obscenities, defamatory or libellous language etc;
   d. All material which may infringe copyright; and
   e. All material which infringes privacy, whether personal or corporate.
4. A Packet Radio Operator using a BBS should avoid transmitting unnecessary or redundant messages and documents, in order to enhance network efficiency.
5. A Packet Radio Operator utilising a BBS should ensure that the callsign of the originating station, including the name of the person responsible in the case of a club station, is clearly shown on every message so the sender can be identified.
6. A packet Radio Operator should avoid messages that are too long for efficient relay through the network.
7. A Packet Radio Operator utilising a BBS should ensure that all messages transmitted are addressed to the appropriate group of recipients and not addressed to inappropriate areas in order to enhance network efficiency.

<u>Guidelines for Packet Radio Bulletin Board Operators</u>

1. The Operator of a Packet Radio Bulletin Board is obliged to provide a reliable service, within a defined area for a defined purpose.
2. A Packet Radio Bulletin Board operator is morally responsible for all messages forwarded by his system. He should make his best efforts to ensure that the traffic forwarded is appropriate to the Amateur Radio Service and in accordance with the Guidelines for Packet Radio Operators.
3. HF Mailboxes should only be used where there is a genuine need that cannot be provided by VHF or other means.
4. A Packet Radio Bulletin Board Operator may take action to exclude a User who persistently contravenes Guidelines for Packet Radio Operators. Excluding a User should only be done as a last resort after the User has been warned and where exclusion does not contravene local regulations.

Allocation of VK9 Amateur Callsigns

The WIA has received a copy of the recently updated guidelines established by the DoTC for the issue of VK9 callsigns. These guidelines should now clarify the position, and please a number of amateurs who have been lobbying for a return to a geographic pattern of issue.

The allocation of VK9 callsigns is no longer handled by the DoTC computer. In order to satisfy the requirements of the amateur service, the issuing of all VK9 callsigns has to be done manually at each DoTC office. The system is listed in the accompanying table.

Shutdown of Repeaters

At the meeting of the WIA Executive held over the weekend of 26th and 27th October 1991, it was resolved that the Executive, noting:

a. that the licensee of a repeater is responsible for its operation; and

b. the WIA Voice Repeater Guidelines (see below)

<u>RECOMMENDS</u> that the repeater licensee shut down

the repeater in the event that:

1. continued operation is or will be in breach of DoTC regulations;
2. operation will lead to a breach of agreements or interference to the service of organisations or individuals participating in the installation or site; and
3. there has been, and it appears likely there will be, persistent or wilful operation in contravention of repeater voice or packet operation guidelines.

Voice Repeater Guidelines

Purpose of Repeaters:

Repeaters are established primarily to extend communication range of mobile stations in the VHF and UHF bands. However, they may also be used as calling channels for initial contact before switching to a simplex frequency. As well, they provide contact facilities for radio amateurs in remote locations where simplex communication is not normally possible.

Operating Conventions:

Each transmission should not exceed 2 minutes. Repeaters have timers to limit transmission length.

Before replying, let the repeater "drop out" and wait at least 3 seconds before transmitting. This allows others immediate access (see #).

Do not reset the timer to extend your own transmission time.

Keep contacts brief and to the point. If you have nothing to say, don't say it! Limit your group QSO to a maximum of 10 minutes.

Avoid over-use of callsigns. They are required at the start and end of a contact, and at least once every 10 minutes. But callsigns can be dropped from the start and end of transmission during a contact. Phonetics are also over-used on repeaters, particularly in callsigns.

#To gain access to a repeater which is being used by others, simply announce your callsign during the pause between overs.

#If using a repeater and another station announces its callsign during the pause, let that station go ahead immediately. He or she may have an urgent message.

Do not transmit on repeater output frequencies. Use reverse facilities only to observe another station's input signal strength. If satisfactory, then QSY to a simplex channel.

Ignore annoying transmissions. Do not respond or comment on a transmission not identified by callsign.

There is no need to call CQ on repeaters. Just announce your callsign and say you are listening on the frequency.

The use of repeaters for liaison to establish a contact on another band is permissible, but cross-band contacts using a repeater are not encouraged. Where cross-band contacts are made all frequencies must be announced by all parties.

Priority must be given to normal repeater usage.

Summary:

Be courteous and unselfish at all times, and always be aware of the needs of other people who have an equal right to share the repeater.

If you hear someone new to repeater operation, assist and educate them in a courteous manner.

Remember others, including new and potential radio amateurs, monitor repeaters - the image of Amateur Radio is important.

VK9 CALLSIGN TEMPLATE

Territory	Unrestricted	Limited	Combined	Novice
Christmas Is	VK9Xa	VK9ZXa	VK9KXa	VK9NXa
Cocos Is	VK9Ca	VK9ZCa	VK9KCa	VK9NCa
Lord Howe Is	VK9La	VK9ZLa	VK9KLa	VK9NLa
Mellish Reef	VK9Ma	VK9ZMa	VK9KMa	VK9NMa
Norfolk Is	VK9Na	VK9ZNa	VK9KNa	VK9NNa
Willis Is	VK9Wa	VK9ZWa	VK9KWa	VK9NWa

Note: 'a' represents any letter of the alphabet a to z

International Representation Fund

Donations to this important fund received since the last acknowledgment include those from:

Mackay Amateur Radio Association (Inc);

RAAF Williams Amateur Radio Club; and

Quantas Amateur Radio Club.

The WIA thanks all these contributors. The demands on this fund are very high at present with the recently concluded IARU Region III conference in Indonesia and the WARC coming up in February next year in Spain. All donations are gratefully acknowledged by the WIA in the continuing fight to retain our amateur service privileges.

Delivery of Amateur Radio

There were some problems with the delivery of the November issue of the WIA magazine. The machine used by the mailing house to insert the address fly sheets in each copy of the magazine obviously had some hiccups and a number of members found, to their surprise, that there was another member's address fly sheet enclosed with their copy of the magazine.

The WIA would like to thank those members who notified the Executive Office when they received another member's address label with their own. A complaint has been lodged with the mailing house and we are assured the problem will not occur again.

However, if you do get another member's address label inside the magazine packaging, please let the Executive Office know as soon as possible so that the member whose label it is will not miss out on a copy of Amateur Radio magazine.

3-Year WIA Membership

Each year an increasing number of WIA members are realising the advantages of renewing their membership for three years. Unless you are a student member, or are not resident in Australia, why not try it?

All you have to do is forward a remittance for an amount equal to three times the renewal amount shown on the membership renewal notice. Then you will not be affected by the inevitable fee increases for the next two years.

End of 1991

Well, that's WIANEWS for 1991. I trust the column has gone some way along the track of keeping members informed of what was happening in the federal arena of the WIA.

I would particularly like to thank Brenda Edmonds VK3KT for her invaluable assistance in producing WIANEWS during 1991, and also Ron Henderson VK1RH.

On behalf of all the crew at the Executive Office I wish you all a very happy and enjoyable Christmas, and a safe and prosperous 1992.

BILL ROPER VK3ARZ

ar

Prevent pirates – make sure you sell your transmitter to a licensed amateur

MULTIPLIER CW TRANSMITTER FOR 3.5/7/14MHz

DREW DIAMOND VK3XU
NAR MEIAN, GATTERS RD.
WONGA PARK VIC 3115

A NUMBER OF ENTHUSIASTS have written suggesting the following project: a relatively simple CW transmitter or exciter to cover three popular HF bands, with VFO control, providing about 2-4W output power without fancy parts. Here is an answer to those valued requests. I hope you like it.

Performance

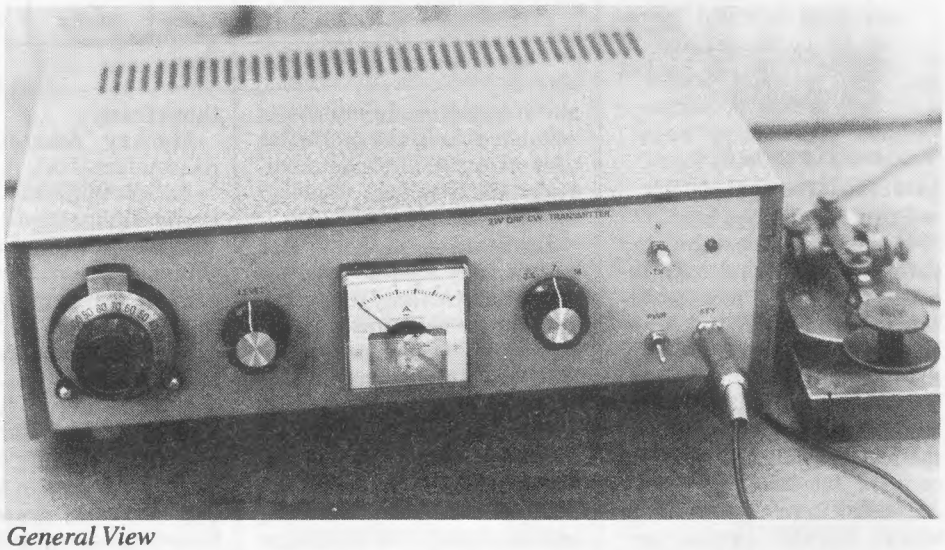
Frequency Range:	3.5 to 3.58MHz, 7.0 to 7.16MHz and 14.0 to 14.32MHz.
Output Power:	Nominally 2W, typically 4W into 50 ohms.
Unwanted Products:	All products are harmonically related, and at least -43dBc, typically -50dBc.
Frequency Stability:	In the order of 60Hz/10min. on 14MHz after 30min. warm-up.
CW Keying:	At least 70dB, no click or chirp.
Load Tolerance:	Will withstand any SWR, including short and open circuit without damage.
Supply:	Nominally 12-13.8Vdc at up to 1A.

Equipment Required

High impedance voltmeter and RF probe, 50ohm dummy load, transistor gain tester, HF receiver and the usual hand tools. Drill press and pin chuck desirable.

Circuit

A Colpitts oscillator maintained by FET Q2 supplies the 3.5-3.58MHz signal. To reduce frequency drift, the oscillator runs continuously. The VFO is well shielded, but a sub-microvolt signal was still audible, so during receive periods the VFO runs above the listening channel. On transmit or net, transistor Q1 switches C1 into circuit and the frequency is pulled down onto the working channel. Buffer amplifier Q3, a dual-gate FET, raises the power to about 7mW and isolates the VFO from load variations. By making the gate-two voltage variable, we have a means of altering the output power to suit operating conditions. Push-push doubler Q4-Q5 produces our 7MHz signal, followed by another doubler for the 14MHz signal. Active doublers are rather prone to parasitic oscillation, so the emitters are left unbypassed to enhance stability. If circuit balance is good, suppression of the input frequency will be at least 50dB. Each doubler is required to deliver in the order of 1mW, which is raised to 20mW by the broadband amplifier at Q8 (13dB gain) then to about 3W with power MOSFET Q9 (around 20dB gain) The waveform at the drain of Q9 can be very fruity and rich in harmonics. The signal must be therefore be cleaned up before application to the antenna. Seven-element low-pass filters (LPFs) for each band do the job nicely.



General View

Various keying ideas were tried, including that of keying the oscillator (well, it was worth a try, but was too chirpy and clicky. Remember, all VFO frequency variations are multiplied by four at 14MHz!) Keying buffer Q3 was not bad, but still unacceptably chirpy. Keying amplifier Q8 provided click- and chirp-free operation, but the key-up 'back-wave' was only about 20dB below key-down. The final solution was to key Q8 and the bias to the MOSFET PA. The supply to these circuits is ramped up in about 5ms and down in 10ms by Q10 in response to the key (the popular Accukeyer circuit may be substituted for the hand key shown here).

Construction

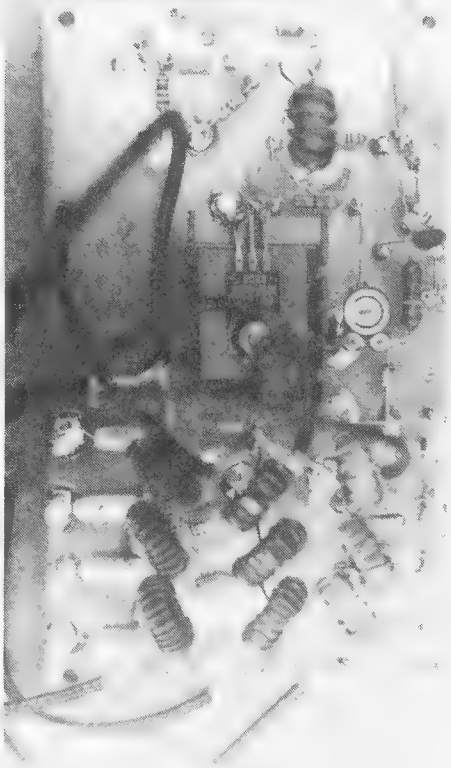
It appears that some builders are discouraged by having to make printed circuit boards. Indeed, there is a perception that a circuit board must be used if the thing is to work properly. Most HF circuits will work entirely satisfactorily with just about any well-known construction method you choose, provided signal carrying conductors and by-pass leads are kept as short as practicable, and inputs are well separated from outputs. Stability is greatly enhanced by mounting the components above a good 'ground plane' substrate. Single or double sided circuit board material is ideal. For RF work, we should avoid any kind of board that uses parallel strips of copper and indirect grounds, eg Veroboard.

For this project I have moved to a practical alternative to the etched board. Where two or more components must connect, a matrix board pin is inserted into the circuit board, which is drilled to

the exact pin diameter for a snug fit. 0.9mm appears to be a common size, but do not assume dimensions — measure pin and drill with a micrometer if available. Vendors can generally supply pins and drills to suit. Very small drills are also available from engineers' tool suppliers. After drilling, the copper is removed from around the hole by carefully countersinking with a larger drill (see Ref 1).

We need a robust oscillator for this transmitter, and it is strongly recommended that the VFO be housed in a solid die-cast box in accord with contemporary practice for mechanical and electrical stability — the box providing the needed thermal inertia, mechanical rigidity and shielding. The 100 + 200pF capacitor shown is adequately suited to this application and readily available. The walls of the box are not perpendicular, so the level pot should be mounted upon a bracket with the shaft projecting through a hole as for the capacitor shaft.

Three circuit boards are required: VFO, doublers, and amplifier. I suggest you build the VFO first. It is vital that high stability capacitors are used in the VFO tank. Styroseal (polystyrene) capacitors are about half the cost of silver micas, temperature stable within normal limits and have a slight negative coefficient. For values below 100pF; NP0 types are ideal. You may have to change the value of C2 to obtain the correct frequency range if C4 cannot do it. Check the frequency and stability with the lid screwed into place. A screwdriver blade inserted in the output connector should radiate enough signal to be checked on the station receiver. If greater tuning range is required, simply connect a small NP0 capacitor between the tags of the 100 + 200pF unit to obtain the desired range.



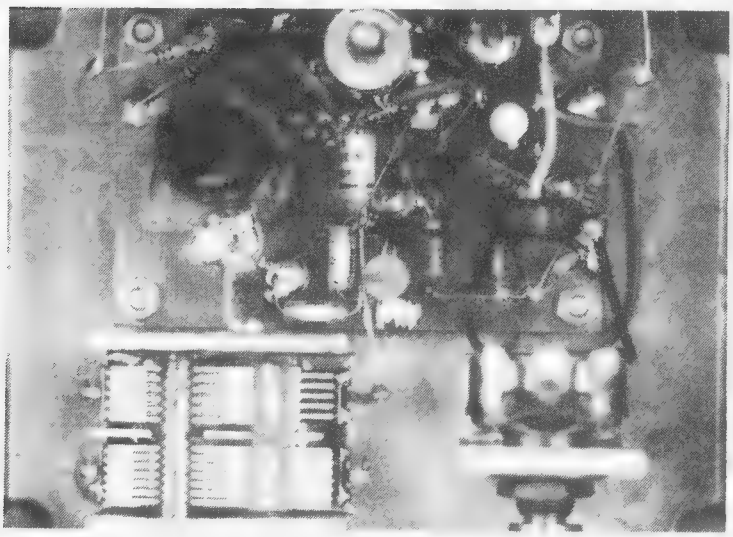
Driver & PA Board

The VFO tank coil L1 should be wound upon low loss, temperature stable material, 0.5" (12.7mm) diameter. Do not use plastic. PTFE (Teflon) is ideal, glass also good; ceramic if you can get it. Mine uses bakelised paper tube. The coil was wound under tension (that is, by anchoring the spool in a vice and walking towards it, maintaining tension all the way) on a hot dry day, then dipped in Estapol to seal it. Material which cannot be drilled will need small solder tags glued onto the former at appropriate points. Note that the coil is located greater than one coil diameter from any metal object. The ferrite bead on G2 of Q3 may be held in place with a small blob of wax.

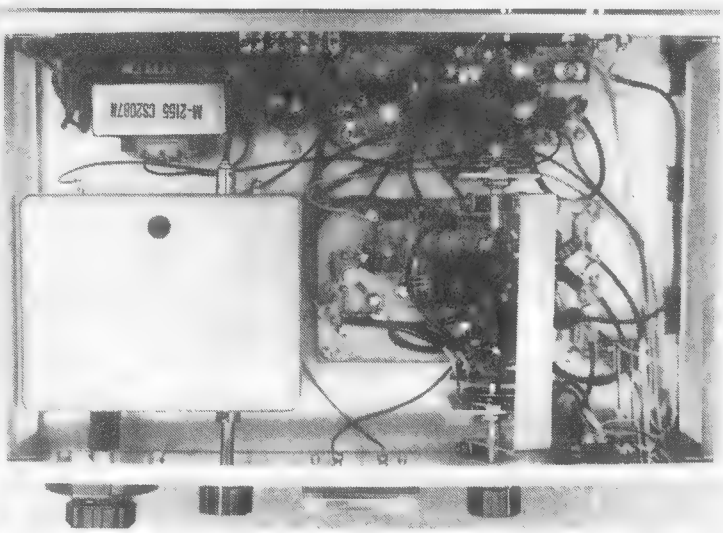
Broadband transformers T2 and T3 are made as follows. Take three 30cm long strands of #24 (0.5mm) enamel wire. Twist them together at one end and clamp that end in a vice. Arrange the wires mutually parallel, then twist the free ends together. Clamp the group in the chuck of a hand drill. Whilst keeping tension on the group, turn the drill until you have about three twists per cm, with no kinks or transpositions, ie the whole length must be uniform. Pull the drill to set the twists. Now wind the triplet onto the FT50-43 core — about 10 loops should fit nicely. Take care not to scratch the enamel. Cut the leads to about 3cm. With a multimeter on ohms, identify the 'primary', which can be any of the three 'windings'. Mark these with a marker pen and push them to one side out of the way. Now identify the starts and finishes of the other two windings. Connect the start of one to the finish of the other to form the centre tap. T4 and T5 are made in similar manner but with a #22 (0.63mm) and without the primary. Corresponding winding ends are shown on the circuit with a dot.

Test the gain of your five 2N3053s, and select two pairs for the doublers which are closely matched in gain, thus making possible a really effective phasing out of the unwanted input signal.

The band change switch posed a problem. The input to the amplifier must be a selection of either 3.5MHz from the VFO, or 7 or 14MHz from the doublers. To simply use one wafer to switch these along with the required LPF would be asking for trouble. Some physical separation is necessary to preserve circuit stability. There are very few wafer switches of more than one bank easily available. If you have one where a shield can be placed between input and output



VFO



Internal view showing board placement and switch

wafers, use it. Shown is a suggested approach. Two wafer switches, each with 3-pole/3-position are mounted upon brackets. A length of sheet metal is formed into a carburettor style linkage with 0.25" holes drilled through each end and slotted with a junior hacksaw. These are each clamped onto the shaft with a screw, washer and nut of appropriate size.

For accurate netting, some kind of reduction drive should be connected to the VFO capacitor. The vernier shown was purchased from Dick Smith's, P/N P7170. To take up any small misalignment, a length of 0.25" rubber fuel hose is used to couple the two.

Power supply requirement is 12 to 13.8V at up to 1A. A typical circuit is included here if required. Remember to cover all mains wiring to prevent accidental contact, and install a 500mA fuse and switch as shown. Mains earth must be connected to chassis ground.

The box shown is a K&W P/N C1284 measuring 30cmW x 20cmD x 9cmH. If this box is chosen, remember to allow for the front and back overhang of the cover when marking out.

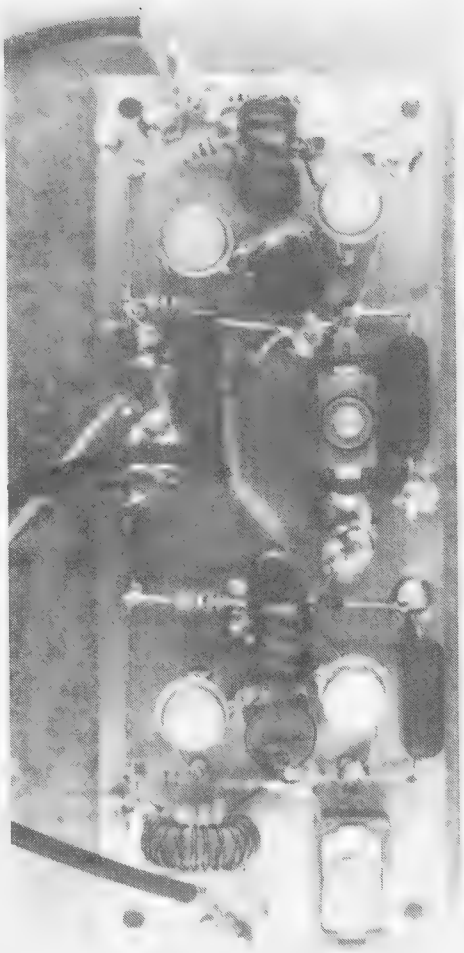
The PA MOSFET should be mounted upon a #6030 heatsink. Fit a mica washer between device and sink, and an insulated washer under the securing nut. A solder tag under the washer provides the drain connection.

The capacitors in the LPFs should be styroseal or mica if available — avoid ordinary disc ceramics if you want a low loss filter. 1800pF greencaps may be substituted for C33 and C34. The braids of the coax connections at the band switch should all be joined together, as shown in the circuit.

Tune-up

From the foregoing it is assumed that the power supply is working, and the VFO is supplying a satisfactorily stable frequency. There should be about 1V open circuit voltage at the VFO output connector as measured with an RF probe and hi-Z meter.

Check your wiring, and that all polarised components are correctly placed. Connect a 50ohm dummy load or power meter of adequate capacity to the TX output (two 100ohm 1W resistors in parallel upon a suitable connector will do). Turn level control R8 to min, and bias trimpot R23 to mid range, and balance trimpots R11 and R15 to mid range. Set the band switch to 3.5MHz and close the key. There should be about 1W output power. Adjust bias pot R23 so that about 500mA is drawn from the supply as a preliminary setting. Now turn up the level control. You should see a smooth rise in power to about 4W, represented by 14V measured across 50 ohms with the RF probe. The current should rise to about 900mA. Listen to the keyed signal on a receiver. It should sound clean and chirp free. You may have to connect a short clip lead to the hot side of the load to get a better sample.



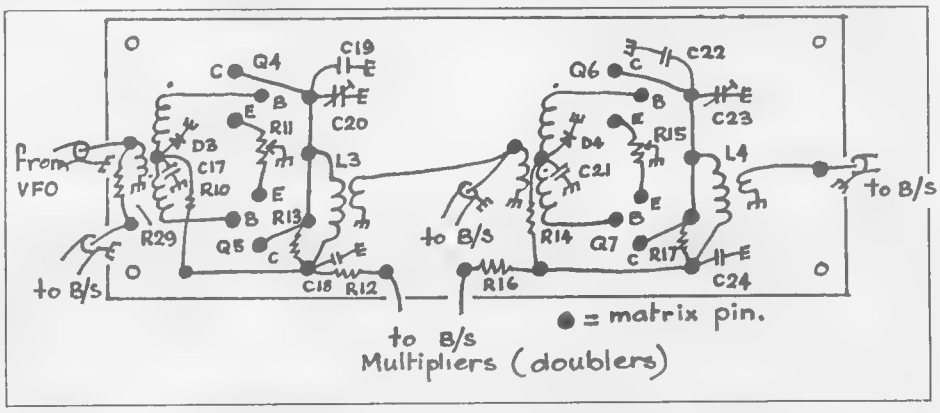
Multiplier Board

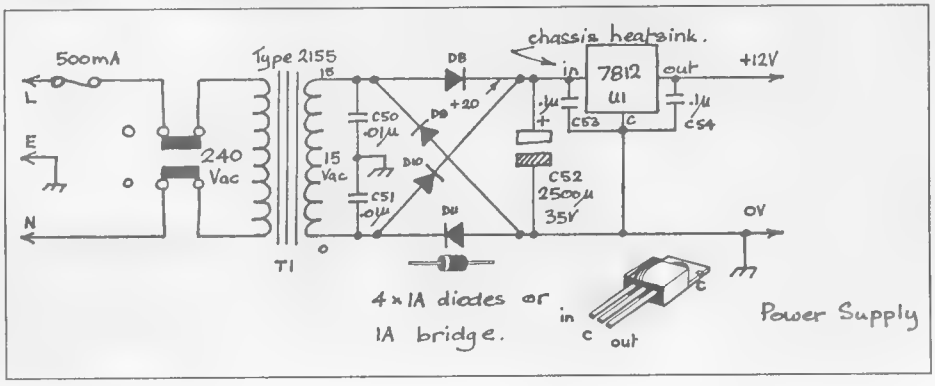
Now set the band switch to 7MHz. Close the key, and peak C20 for maximum signal at about 7.025MHz. Do the same at 14.05MHz with C23. On 7MHz, connect the RF probe to the collectors of Q4-Q5, and carefully adjust R11 for the just perceptible dip as the unwanted 3.5MHz component is phased out. Connect the probe at Q6-Q7 and do the same on 14MHz for the unwanted 7MHz component by adjusting R15. If you cannot see the dip (it is very small), listen to the unwanted signal on your receiver and adjust for best null.

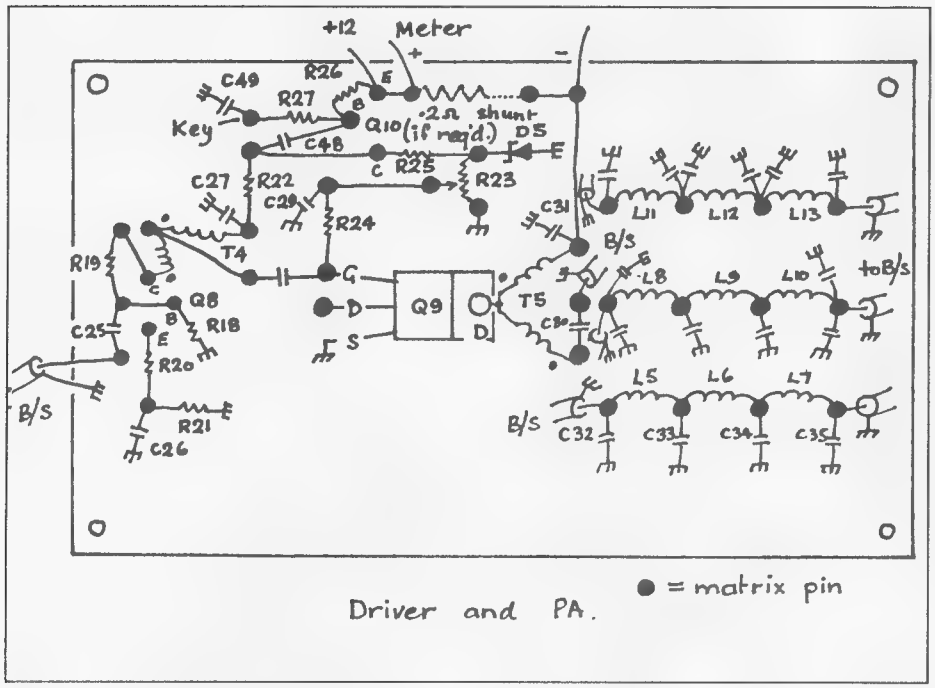
Overall efficiency is lowest on 14MHz (the useful limit of the MOSFET in this configuration), so we may make a final adjustment of the standing PA drain current by setting the level pot to min. Close the key and adjust the bias pot for about 500mA. Rotating the level pot should cause the current to rise smoothly to about 800mA at 3W output.

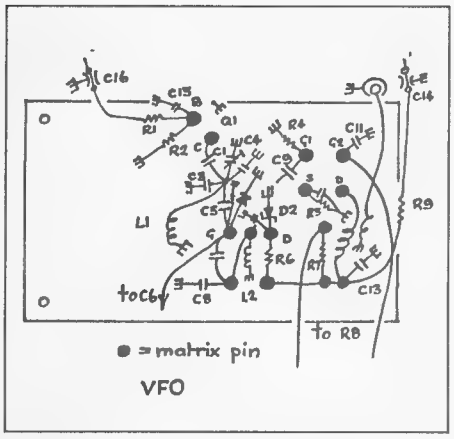
Problems

There are no perceived traps for the handy radio/electronics enthusiast. If you have followed the suggested approach, the oscillator should be sufficiently stable









for normal purposes. Thirty minutes or so of warm-up time should have the device slowly cycling up or down only a few tens of Hz per TX/RX over on 14MHz.

To eliminate warm up delay, there is no harm in leaving the set on 24 hours per day. See Ref 2 for further notes on VFO construction. Some salient RF and DC voltages are shown to aid in any trouble-shooting. When netting onto a strong station, you may also have to close the key to obtain a stronger netting signal (the signal is not put to air). If you cannot solve a problem with this project, please write, including an SASE, and any reasonable amount of help will be returned.

Parts

The bulk of components chosen are known to be available from the usual electronics retailers. Here in VK3, we are fortunate in having two suppliers of radio type bits: Stewarts (03 543 3733), which can supply Amidon cores and most components, and Electronic World (03 723 3860) for all components, including the 3x3 wafer switches, the power MOSFET and the variable capacitor. Other Amidon suppliers regularly advertise in this journal.

A Stronger Signal

It is easily possible to work stations far and wide, and derive great satisfaction with just 3W, even with a modest antenna. Nevertheless, you may wish to add an amplifier at some later date. The 25W MOSFET linear amplifier described in *AR* Jan '91, with the addition of a 14MHz LPF will suit this TX, and makes a useful enhancement to the set. Anticipate about 30W on 3.5MHz, 15W on 14MHz.

Miscellaneous

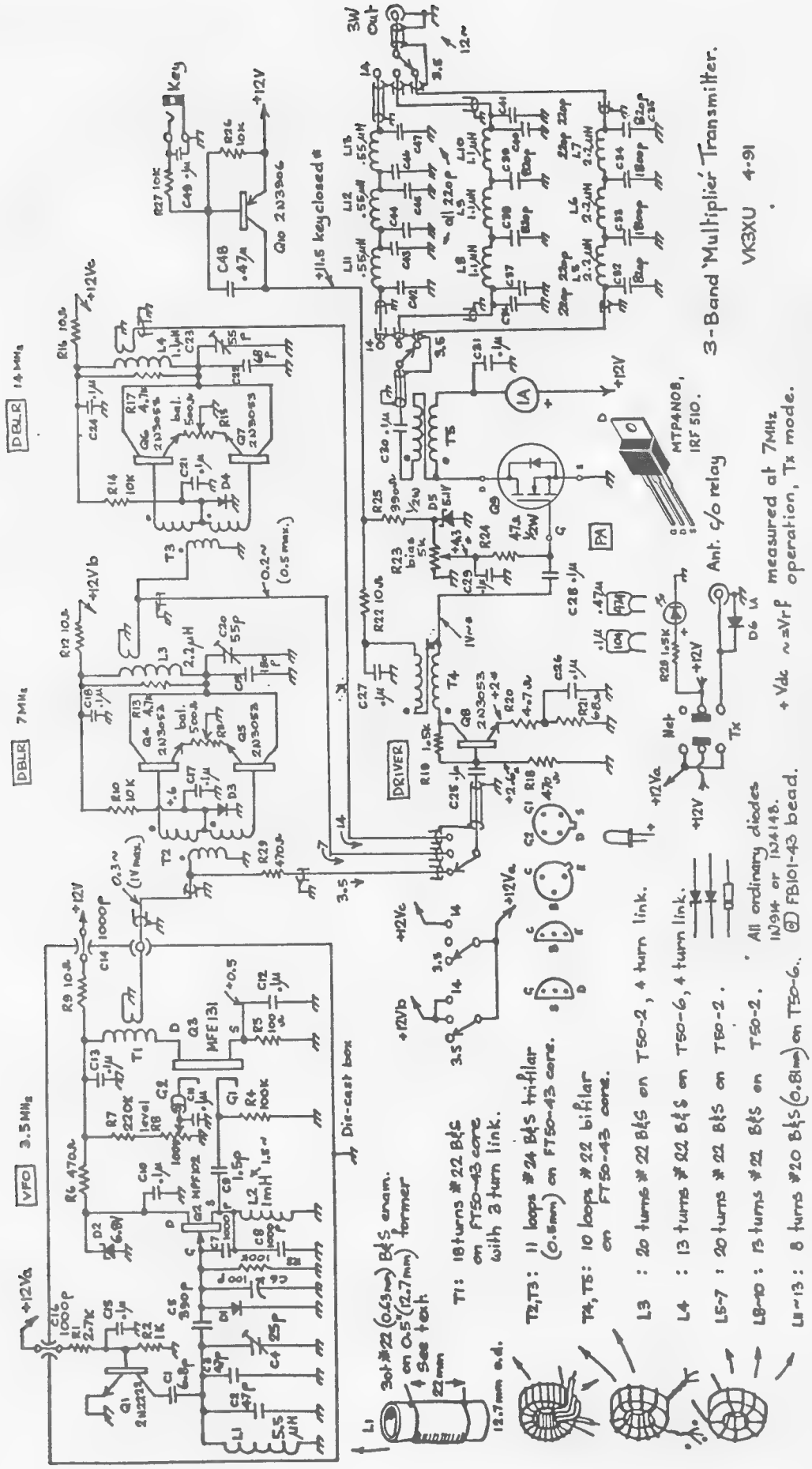
Case to suit or material for same, die-cast box 120 x 95 x 56mm, wafer switch 3 or 4 pole/3 pos (2), DPDT centre off switch, DPDT switch, vernier dial and coupler, knobs, circuit board material, pins 1A meter or 1mA meter with 0.2ohm shunt, VFO coil former, 6030 heatsink and insulators, hook-up wire, #20, #22 and #24 winding wire, miniature 50ohm coax, key socket, coax sockets, spacers (16), aluminium for brackets and linkage, screws, nuts.

References and Further Reading

1. How to Lay Out RF Circuits, White, G3SEK, *Rad Comm* Feb/Mar '91.
2. Some Practical Tips on VFO Construction- *AR* Jan '88.
3. Solid State Design, Hayward & DeMaw, *ARRL*.
4. W1FB's Design Notebook, DeMaw, *ARRL*.
5. QRP Classics, *ARRL*.

Parts List for the Multiplier Transmitter

Capacitors	
1.5pF NP0	C9
6.8pF	C1
47pF	C2, 3
68pF	C22
25pF "beehive" air variable	C4
55pF (approx.) compression mica	C20, 23
100pF air variable	C6
180pF polystyrene or mica	C19
220pF polystyrene or mica	C36, 37, 40, 41, 42, 43, 44, 45, 46, 47
390pF polystyrene or mica	C5
820pF polystyrene or mica	C32, 35, 38, 39
1000pF polystyrene or mica	C7, 8
1800pF polystyrene or Greencap	C33, 34
1000pF feedthru	C14, 16
0.01µF/100V ceramic	C50, 51
0.1µF monolithic or ceramic:-	C10, 11, 12, 13, 15, 17, 18, 21, 24, 25, 26, 27, 28, 29, 30, 31, 49, 53, 54
0.47µF monolithic or ceramic	C48
2500µF/35V electrolytic	C52
Resistors	
4.7ohm, 1/4W	R20
10ohm, 1/4W	R9, 12, 16, 22
47ohm, 1/2W	R24
68ohm, 1/4W	R21


3-Band 'Multiplier' Transmitter.
VK3XU 4-91
VFO 3.5MHz
DBLR 7MHz
DBLR 14MHz
DRIVER
PA
Ant. c/o relay
MTP4N08, IRF510.
Key
3W Out
Die-cast box
+11.5 keyclosed
T1: 18 turns #22 B&S on FT50-43 core with 3 turn link.
T2,T3: 11 loops #24 B&S trifilar (0.5mm) on FT50-43 core.
T4,T5: 10 loops #22 bifilar on FT50-43 core.
L3 : 20 turns #22 B&S on T50-2, 4 turn link.
L4 : 13 turns #22 B&S on T50-6, 4 turn link.
L5-7 : 20 turns #22 B&S on T50-2.
L8-10 : 13 turns #22 B&S on T50-2.
L11-13 : 8 turns #20 B&S (0.81mm) on T50-6.
All ordinary diodes 1N914 or 1N4148.
FB101-43 bead.
+Vdc ~=Vrf measured at 7MHz operation, Tx mode.

100ohm, 1/4W	R5
470ohm, 1/4W	R6, 18, 29
390ohm, 1/2W	R25
500ohm miniature flat mount trimpot	R11, 15
5kohm miniature flat mount trimpot	R23
1kohm, 1/4W	R2
1.5ohm, 1/4W	R19, 28
2.7ohm, 1/4W	R1
4.7ohm, 1/4W	R13 17
10ohm, 1/4W	R10, 14, 26, 27
100ohm, 1/4W	R3, 4
220ohm, 1/4W	R7
100kohm linear pot	R8

Semiconductors

MPF102, 2N5457 etc	Q2
MFE131, 40673 etc	Q3
2N222, 2N3904 etc	Q1
2N3638, 2N3906 etc	Q10
2N3053, BFY50 etc	Q4, 5, 6, 7, 8
MTP4N08, IRF510 etc,	Q9
1N4148, 1N914	D1, 3, 4
6.2V/400mW zener	D2
5.1V/400mW zener	D5
1A/400V diode	D6, 8, 9, 10, 11
LED	D7
LM7812, 12V/1A pos regulator	U1

Inductive Components

1 or 2.2 or 2.5mH RFC	L2
Amidon FT50-43 toroidal core	T1, T2, T3, T4, T5
Amidon T50-2 toroidal core	L3, L5, L6, L7, L8, L9, L10
Amidon T50-6 toroidal core	L4, L11, L12, L13
Amidon FB101-43 bead	G2 of Q3
Transformer, 15V/1A	T6

ar

Something in the Air?

Packet radio users in New South Wales may hear some strange signals on two metres over the next few months.

Gareth VK2ANF is doing some experiments sending data to and from light aircraft, starting with ground to ground, then air to ground, and finally air to air.

The aircraft will *not* accept connects, and will beacon periodically. Initial testing will be done on a quiet frequency away from other traffic, but later a busy packet channel will be used to simulate congestion.

Amateur stations not participating in the experiment are asked to ignore the signals from VK2ANF. If a popular packet channel is being used, please feel free to send packets while the aircraft are beaconing — this will be important in evaluating the data integrity.

The aircraft will be flown by pilots who are also amateurs, their callsigns to be advised. However, in the final demonstration phase of the experiment, aircraft callsigns may be used, DoTC approval pending, of course.

If you would like more information, please contact Gareth VK2ANF at PO Box 1367, Dee Why NSW 2099. ar

QTC (I Have a Message For You)

It has been brought to our attention that copies of this book which was reviewed by Ian Crompton VK5KIC in the July issue of this magazine are available from Alec Sandilands, 10 Nelligen Place, Nelligen NSW 2536, at a cost of $A17.00 hardcover or $A10.85 paperback (postage and packing inc). Suggest you contact Alec with any queries. ar

Australian Radio and Radar Publications

COLIN MACKINNON VK2DYM, 52 MILLS ROAD, GLENHAVEN 2156

There have been a number of books published over the years which deal with the history and technical development of radio and radar in Australia. Most were printed in limited numbers and are sometimes hard to find. So that interested readers and researchers may know what each contains, this column will give brief details of those publications known to me. In general terms the books selected contain historical or technical details of Australian amateur radio, commercial or military radio and radar, and I do not include publications dealing only with radio or TV programs and broadcast personalities.

I am not covering trade technical booklets like the AWA and Philips publications, nor at this stage do I intend to list communications and radar equipment. I may do that later if there is sufficient interest. If anyone can add to my list, I would appreciate details so I can include them in the catalogue. ar

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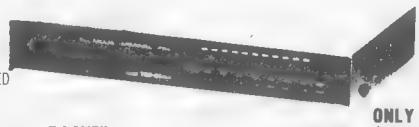

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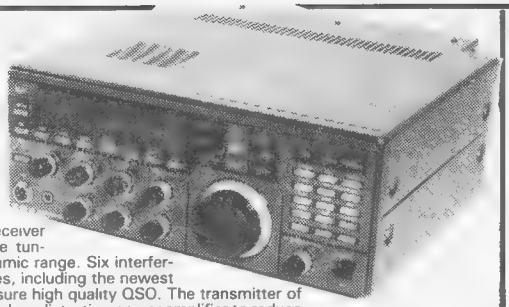

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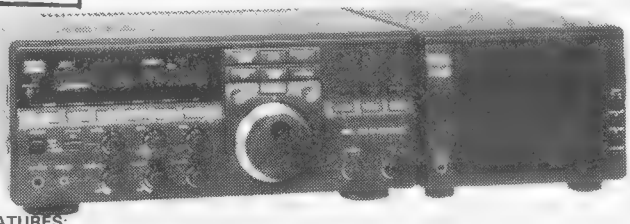

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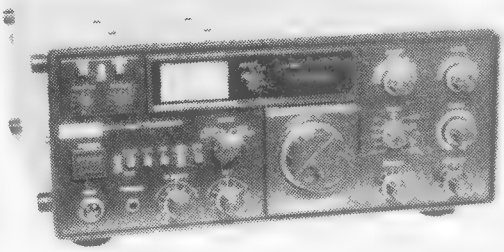

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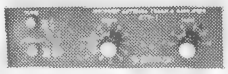

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A SMALL HELICAL ANTENNA FOR TWO METRES

IAN GLANVILLE VK3AQU
6 LEGGIO RD,
MYRTLEFORD 3737

AS I APPROACHED THE finishing stages of a home brew 2m FM transceiver I decided that a rubber ducky or similar sized antenna would finish off the project just nicely. Having built helical antennas for HF I decided to apply the same principles to VHF. That is, when a half wave length of wire is wound in this fashion it produces an electrical quarter wave antenna. What I came up with was an antenna measuring just 210mm long (8-1/4") plus BNC connector.

Construction

For the former I used 210mm of polyethylene from an old piece of 100ohm coax. This has a diameter of 7mm. Remove the sheath, braid and inner conductor. Using a Stanley knife, shape one end to fit the BNC coax connector. Next, drill a 1mm hole at an angle toward the bottom to allow the wire through to the cavity left by the inner conductor and out to the connector. Using some coax braid, form a solid tip of 12mm on the top end. Tin it to keep it in place.

Now take one metre of No 24 gauge wire and wind as per figure 1. This length may well prove to be too long, but use all the wire. You can trim it up later.

Solder one end to the braided coax at the top and the other end pass out through the hole you drilled near the bottom and fit the centrepiece from the BNC connector.

Now comes time to test it. Using a BNC female connector, solder four radials of 500mm at 90-degree intervals to form the ground plane, and attach this to a test mast in a clear location. At the bottom of the female connector, solder a short loop of two turns. Connect the antenna and couple a dipper to it and check for resonance. The frequency should be below 146MHz. To achieve resonance, trim wire from the bottom until the dipper indicates resonance at the desired frequency, say 146.50MHz. Now replace the two-turn loop by a short piece of 52ohm coax. Try to get the SWR meter as close as possible to the antenna. Check the SWR (identify your transmissions and use low power in an unused portion of the band, please). The SWR will probably be quite high. Try shifting the wire around, altering the turns spacing. The figure is an indication of how mine finished up and can be used as a guide. When you get the SWR as low as you can (in my case this was still above 2:1) bend the radials down. All being well, the SWR will drop to an acceptable level. I further tested mine mounted on the printed circuit board case of my home-brew hand-held. It was nice to know it presented a low SWR to the device to which it will be finally connected. Finish off by glueing the former to the BNC connector and covering the antenna with some heat-shrink tubing.

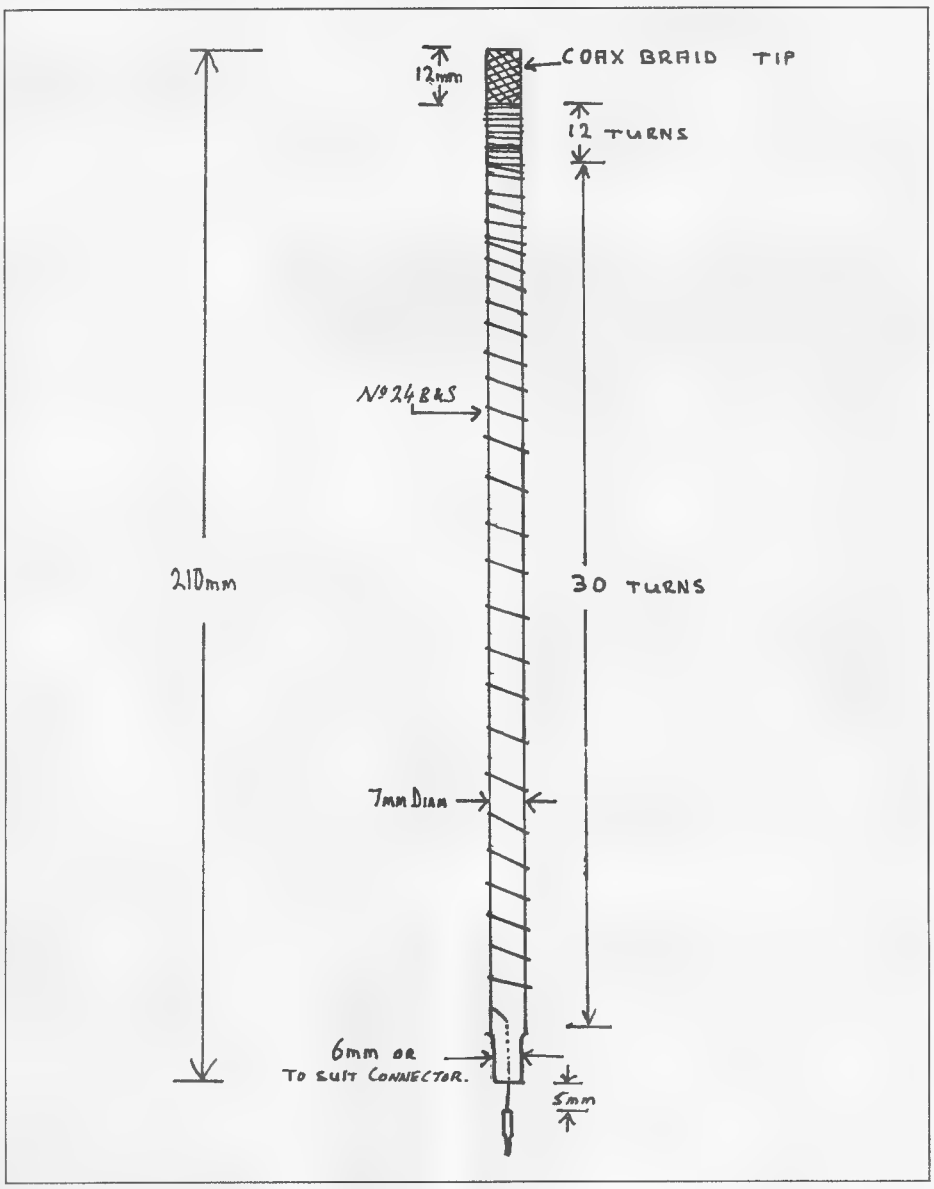


Figure 1: Two-metre helical

So, there you have it. A small and effective helical antenna. Perhaps you may like to now try one for HF.

References

Radio Communication July 1974
ARRL Antenna Handbook

ar

QUAD LOOP FOR HF USE

OR GIVE ME A HOME AMONGST THE GUM TREES!

ADRIAN FELL VK2DZF
PO BOX 344, BAULKHAM HILLS 2153

THE QUAD LOOP THAT is described in this article has been in operation on my QTH for the past four years. For me, that's saying something, as my experimental nature often makes for many changes. This loop hasn't moved!

Owners of quad or delta type loop antennas will need no further introduction to this excellent antenna. Those of you who have not tried a full wave loop antenna should at least find this article interesting; maybe it may provoke more incentive to give it a try.

Although a full wavelength long loop of wire can often present to the constructor more problems than a dipole, the extra will be worth it at the end of the day because the quad loop is a superb antenna. Not only does this loop provide your signal with some extra oomph, it makes an excellent receive antenna, being lower on QRN pick-up and a good signal-to-noise ratio is presented to your receiver.

Those amateurs who want a high performance antenna that fits somewhere in between a G5RV and a TH6DXX should look no further than the quad.

Construction Method

There are many, many ways to construct a quad loop; this is only one of them. I have made full use of two 70' gum trees located in my suburban block of land.

The idea of not using spreaders not only saves expense, but makes for a less visible antenna, thereby keeping the neighbours happy.

The overall arrangement is shown in detail in Figure 1.

The matching method I chose to use was the gamma wire with a series tuning capacitor to tune out reactance; this arrangement works extremely well in practice and, because this arrangement of matching assures minimal (if any) radiation of RF from the coaxial cable, low TVI is guaranteed. This is important when one lives in suburbia.

Wire size is optional, but a good fairly heavy gauge multi-strand type (such as earth wire) is recommended for the set-up in Fig 1.

Wire size, construction methods and

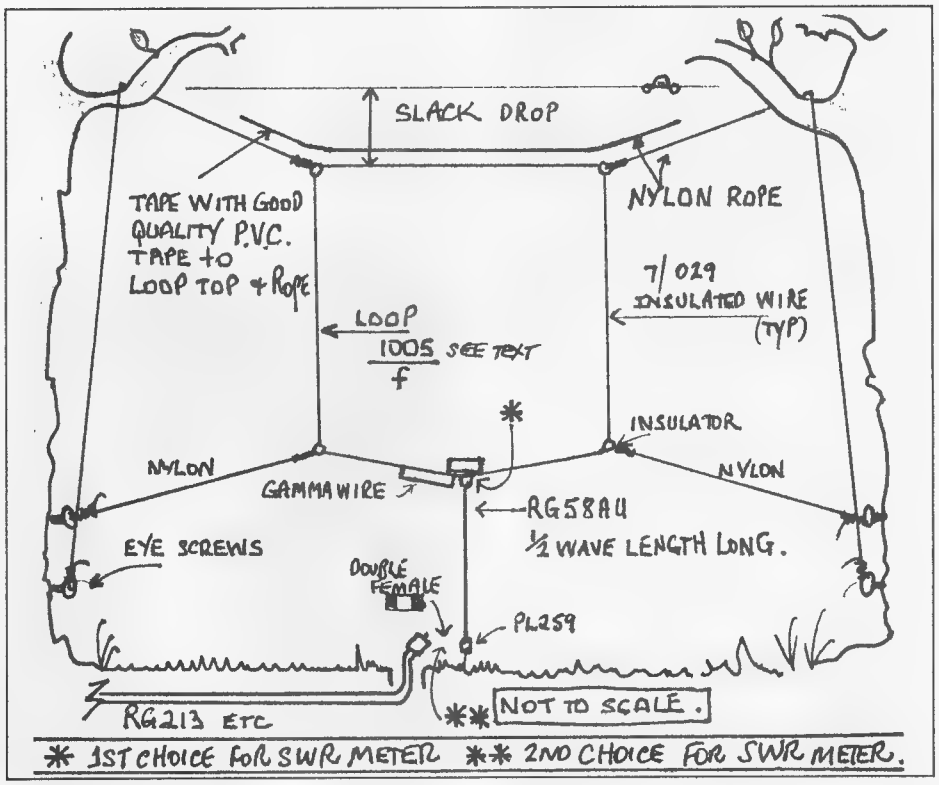


Figure 1

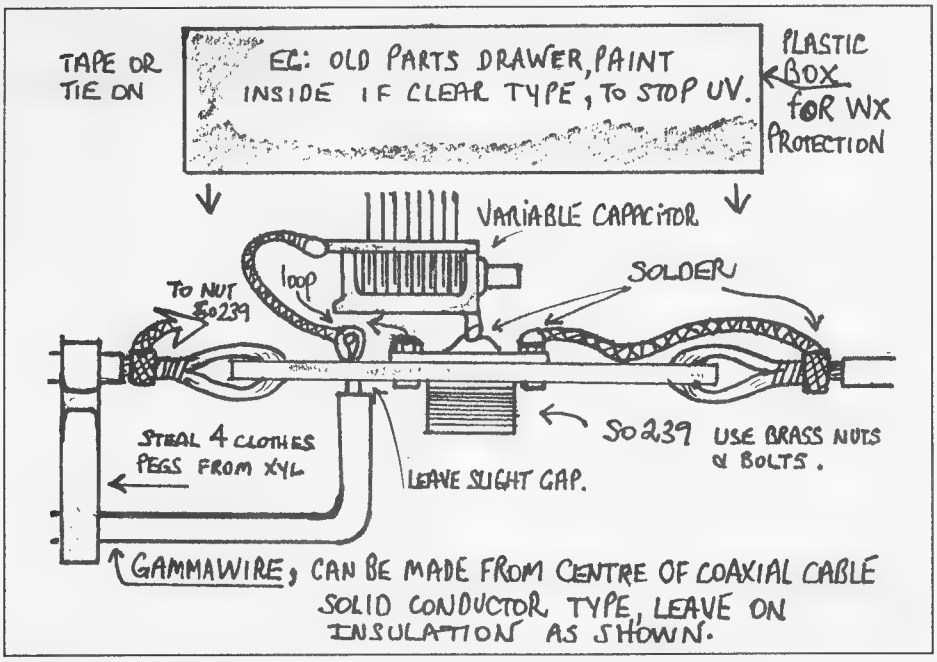


Figure 2

height of the loop above ground will affect the exact resonant point of the loop, but as this loop is very broad (large bandwidth) the formula 1005/f(MHz) should assure a very close result.

One can use the VSWR readings to determine where resonance occurs and make use of a GDO or noise bridge. Other arrangements such as tuning stubs could be used and, if further information on the various methods available are required, the reader should refer to *Handbook on Cubical Quad Antennas* by William I Orr and Stuart D Cowan.

The details for a starting point for tuning are given in Fig 3, and in my case (20m quad loop) the distance "L" had to be increased somewhat to obtain a very low VSWR reading.

Adjusting tuning capacitor "C" along with distance "L" should achieve a very low, if not perfect, VSWR of 1:1. By checking the bandwidth and seeing the extremes, resonance will be found. The loop size may have to be made smaller or larger, so allow for this during construction.

It seems a bit time-consuming, doesn't it, but it's worth the effort.

Don't worry if you don't get the VSWR down to 1:1, the loop will still work like a charm.

The SWR meter should ideally be inserted at the point * (marked in Fig 1) or, if that is too difficult, you can make a 1:1 transformer by using a half wavelength of RG58AU coaxial cable. This will allow for checking and adjusting the SWR at ground level. RG58AU is used because it is much lighter in weight, thereby not pulling the square out of shape too much.

Figure 2 shows the method I used to construct the centrepoint and gamma construction, and if you don't wish to use a variable capacitor this could be changed with a fixed type, or a piece of coaxial cable can act as a good capacitor.

If you have a digital capacitance meter, you could substitute as suggested above.

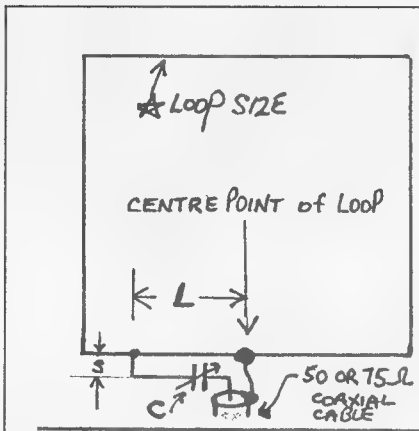
Allow for wires to flex, and insulate the wire going from the capacitor to the gamma line. RG58AU (shield only) makes for a good flexible connecting wire, and all should be self-explanatory from the drawing in Fig 2.

Don't forget the weather protection box to cover all the doings; paint it if it's clean — helps keep out the UV rays.

Don't use bright colours; some birds like to eat and pick at different colours. Green might be worth trying.

Getting the Loop in the Air

If two trees are used as in Fig 1, the method I used to get the nylon cord over



BAND	L	S	C (PF)
40	73"	4"	200
20	35"	2"	100
15	27"	1·5"	75
10	18"	1"	50
6	10"	1"	30

Loop Size : Between 990/f (MHz) and 1005/f (Total Length)

Figure 3

Adrian VK2DZF at his other hobby — hi-fi.

the branches was first to catapult a lead shot connected to a light fishing line over the desired branch. This should then fall back to ground level.

The fishing line is then joined to plumb-line type cord and pulled over the branch by the fishing line, once the plumb-line is over and down. This is then used to pull over the final thick nylon rope. If you are a "good shot" with a catapult, the whole exercise will be quite easy and, after a few years, you will become an expert!

My loop is about 45' high to the top, leaving the bottom of the quad loop about 27' off the ground, well clear of everything.

The RG58U can then be pulled to one tree when the antenna is not in use,

Judi VK2ELF works CW only. The Fell couple have four children. Judi won the CW section of the RD contest in 1984.

leaving the ground level clear. Now it looks like a "normal" back-yard again.

If a slack level is left at the top of the loop as in Fig 1, the trees can move around in the wind *without* the nylon cord rubbing on the branch.

One could of course use pulleys and weights, but I have found that method is not necessary. Don't tie cords around trees; you could ringbark the tree. Better to use screw eyelets (or similar), it will not harm the tree that way. I used egg-type insulators at the corners. I then secured them with stiff wire, put there on the loop first.

Performance

The quad loop will transmit (and receive) its strongest signals at right angles to the loop. Looking at Fig 1, this would be in and out of the page.

My two trees have determined the direction of our loop to point in a NE/SW direction; this is towards the USA, both long and short path.

This will put out transmitted signal at a 2-3 S-point disadvantage towards Europe, because the sides of the loop face this direction.

In practice, this doesn't come to many problems, except for one unavoidable fact of life for 20 metres: "QRM". It's often very hard for European stations to copy a S-5 signal if they are experiencing heavy QRM. So, to maximise the signal strength, point the loop in your favourite direction, but don't worry too much if you can't; it still will work quite well.

Another way to overcome this problem is to use two loops at right angles to each other (see article by VK4FUQ *AR* March 1991). Our average signal reports (on CW) to the east coast of the USA are S-7, rarely below S-5, sometimes S-9. Working phone, I have received S9 reports to the USA (and even Spain) using an old TS520-S. I'm not worried about signals being down a bit in the direction of the sides of the loop as I switch over to my Z-match — Multi-band inverted V antenna, which works very well on 20 metres — in the direction of the major lobes. The loop also works extremely well for local (VK-ZL) stations as well.

In conclusion, a fixed (non-rotated) quad loop does have some weak spots, but these are (relatively speaking) very minor compared with the overall performance, which is excellent. Give the quad loop a try.

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- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 *AR*).
- Selections of power chips and TX tubes at friendly prices.
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Other Options

Feeding the quad loop with a gamma match and coaxial cable is not the only method available. Balanced open wire feeders with a Z-match coupler would be another excellent method. There are plenty of options open for feeding arrangements; pick one that suits your own requirements if the gamma doesn't suit. A quad loop can be used as an excellent multi-band antenna, and suggested further reading on this subject is available from RSGB publications.

I shall be investigating the capabilities myself of multi-banding the quad loop in conjunction with the mighty Z-match coupler. No doubt it will work, but I am still reluctant to take down the gamma quad loop.

Good luck, 73, Adrian Fell VK2DZF

References

RSGB Handbook & Antenna Books
ARRL Handbook & Antenna Books
All About Cubical Quad Antennas
William Orr; Stuart Cowan
AR March 1991, by Felix Scerri
page 13

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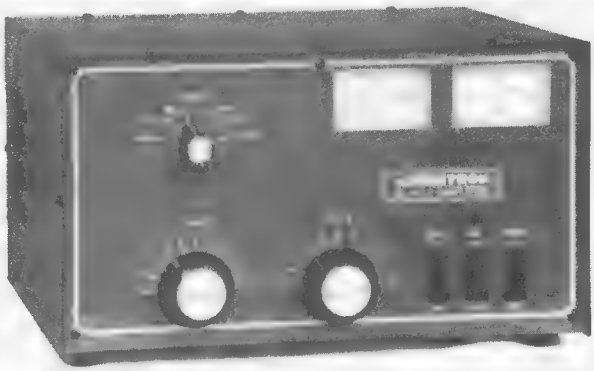
AMERITRON

AL811 600W PEP
HF Linear amplifier



Shades of the magnificient past! Remember the days when a power amplfier looked like it meant business and was heavy enough to convey the message? Well those days are back! Ameritron, one of the USA's leading amateur power amplifier manufacturers has released an amplifier using three 811A tubes in Class AB2 grounded grid to deliver a clean, comfortable 600W PEP. The AL-811 amplifier needs only 40W of drive for the VK legal limit. Best of all the cost of running the AL-811 is low, and a new set of tubes will only cost $105 not $350 - $700 or more for other amplfiers using more exotic tubes.

- 600W PEP output
- All bands 160-10
- Three 811A tubes
- Quiet fan cooling
- Rugged construction
- 50Hz rated transformer
- Easy to use
- Vernier anode tuning
- Large twin meters
- Safety interlock

Ameritrons choice of the 811A is no accident, nor is it a purely economical one. The 811A has developed an envialbe reputation for robustness and reliability over many many years of operation in amateur and commercial service. Its directly heated thoriated tungsten filament is immune to cathode stripping which can ruin an expensive indirectly heated tube in a few milliseconds if the amplifier is mistuned.
Ameritron have chosen a simple yet extremely effective input circuit, a single Pi section with a slug-tuned coil for each position of the band switch. The slugs of the coils can be easily adjusted without removing the cover so that you can peak the amplifier without danger of being exposed to high voltage supplies.

AL-811 **$1449.00** plus freight

Stewart Electronic Components Pty. Ltd.
ACN 004 518 898
44 Stafford Street Huntingdale : PO Box 281 Oakleigh 3166
Phone (03)543-3733
FAX (03)543-7238

GETTING STARTED WITH AMATEUR RADIO SATELLITES

(Part 10)

Bill Magnusson VK3JT, 359 Williamstown Rd, Yarraville 3013

(Concluded from previous issue with editorial apologies to Bill for having to interrupt his train of thought!)

Range calculations also have another important spin-off. The rate of change in respect to time at the observer's location is a measure of how quickly the satellite is moving towards or away from the observer. This can be resolved into a factor which can be applied to the beacon and transponder frequencies to give a printout of doppler shift.

This is why some programs require the user to enter the beacon frequencies. Remember, however, this is only a one-way doppler calculation and is of use only when communicating directly with a satellite. It does not take into account a signal being relayed through an orbiting transponder. This is a much more difficult problem as it involves two different rates of change relative to two separate locations.

That's not the end of it. There are many more things that can be worked out from the kep elements. Satellite orbital speed, orbit period and equator crossing increment to name a few. Some are important, some not. The time of next rise and set. Visibility time in minutes. Footprint coverage. Mutual communication windows. A program could be made to print out all these and more. Somewhere you have to draw the line.

The Karl Meinzer pocket computer program, for example, prints out only elevation, azimuth and mean anomaly. It can be extended to include range, height and the sub-satellite co-ordinates, but this slows it down.

The speed of calculations is of virtually no importance to a modern fast computer. It'll work faster than you can read or your printer can print. But not everyone has an IBM486. My old BBC computer runs in Basic at 1MHz and every extra thing you ask it to do takes more time. I try to bypass as many unnecessary calculations as possible to speed things up.

Now I'm not suggesting you go out and learn programming so you can get into your software and speed it up. Most modern software is written in machine language and is probably running as fast as possible anyway.

The purpose of this final article in the series has been to de-mystify the goings on inside your computer. I hope it's gone some way towards doing that without becoming too complicated.

In fact, I hope this whole series has gone a long way towards doing that for newcomers to the exciting subject of amateur satellites. Go for it; keep learning and enjoy.

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TRY THIS

Survival Radio

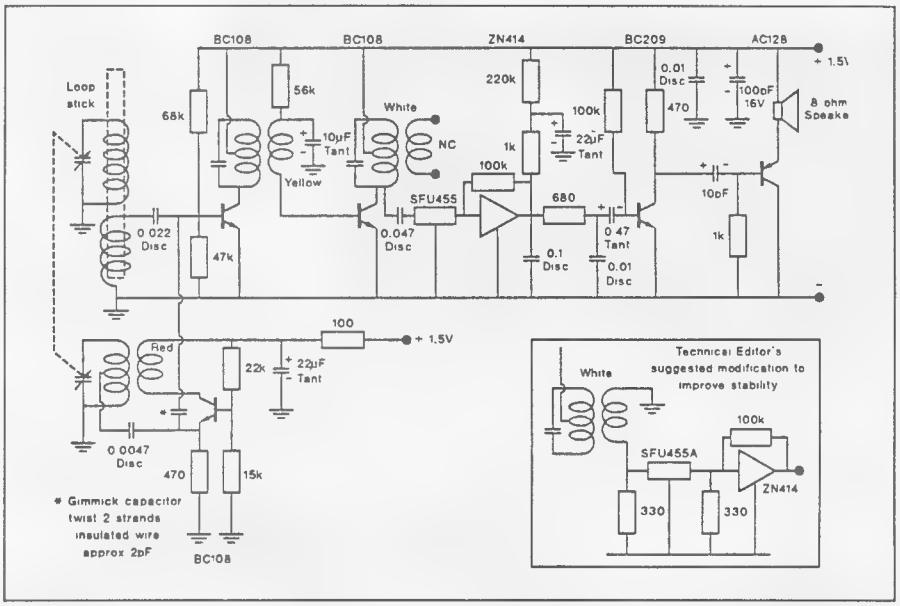
I have always been interested in low voltage equipment, and although I have come across commercial receivers which work from a three-volt supply, and even a 1.5-volt supply using germanium transistors (hard to come by these days), I have never seen a circuit using mostly silicon transistors and off-the-shelf components.

The results obtained using a 1.5-volt battery supply (one D Cell) were encouraging and it also worked reasonably well using solar cells.

Solar cells of approximately 0.45 volts are obtainable from one supplier, but the price is a bit high. If sufficient interest is shown, I feel sure a number of suppliers could make this item available.

A set of IFs is available from different suppliers, but the set I bought had two second IFs (both white top) and one third IF (black top), one oscillator coil (red top), but no first IF (yellow top).

I used them anyway, but if you can obtain the correct set of coils it would be better.



The circuit above was developed after some experimentation and undoubtedly can be improved upon.

J A Heath VK2DVH
Lot 26 Remembrance Drive
Tahmoor 2573

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"NOT A HIGH TECH" HEADING FINDER

BRYAN BAILEY VK5BFB
44 CHARLBURY RD, MEDINDIE GARDENS 5081

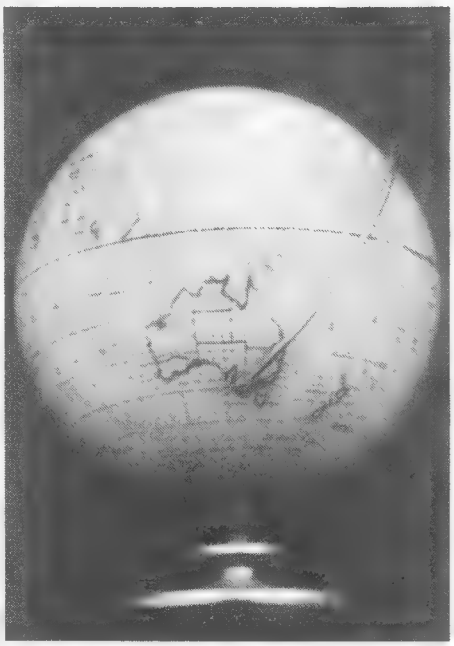
THE SUBJECT OF THIS article is an old idea revisited. It was passed to me by Tony VK5JG and was, in fact, made by him and slightly modified by me.

A school earth globe is modified by removing the mounting and arc and remounting the globe on its south pole. The builder can use his/her initiative here. The mount can be wood or anything suitable from the junk box. I used a pulley from a Hoover washer. It is important that the "neck" joining the mounting to the globe be as thin as possible in order that the maximum sweep of the cursor be obtained.

This "cursor" arc which sweeps the globe and gives the actual heading is made up of stiff wire, brazing rod etc, one end of which pivots on your QTH and the other on the Antipodean point — the point 180 degrees from your QTH as listed below.

Pivots are formed at each end, by either bending or soldering suitable fittings from the junk box. Mine has contact blocks from a bayonet light socket.

If the globe does not have longitude and latitude marked, the points can be located on a map and transferred to the globe. Care is needed here to ensure the points are accurately marked before drilling holes. Fit the cursor and you now have a useful aid in finding short path headings which is used by positioning it so your QTH faces south, running the cursor to your signal destination and turning your beam accordingly.



Picture of finished heading finder

In this form, the unit gives short path headings, using an "Armstrong" rotator. Long paths can be indicated by an extension of the cursor on the QTH end and, if required, a degree scale can be easily added.

This unit is well worth making and is a good talking point. Signal paths can be quite a surprise to the uninitiated.

Antipodean points for QTHs around Australia are:

Adelaide	34.55N	41.60W
Alice Springs	23.40N	46.50W
Brisbane	27.28N	27.00W
Darwin	12.24N	49.50W
Hobart	42.50N	32.,80W
Melbourne	37.50N	35.40W
Perth	31.57N	64.50W
Sydney	33.50N	29.00W

(Other antipodean points may be calculated thus:

Latitude: same as QTH, but in northern hemisphere.

Longitude: 180 — QTH's long; result is longitude west of Greenwich — Ed).

ar

Technical Correspondence

More About Modulation

VK5BR's Modulation & Modes brought us all up to date. However, the treatment of AM did miss many points, apart from the excellent bit on vestigial AM for TV. It left no clues at all as to why it is still used! A version of vestigial AM was, may still be, used at up to 500kW by the American SW broadcasting system. The technology was to amplify the carrier, including a component of the original DSB, and one sideband in separate amplifiers and combine them at the antenna input.

Why is it used? Well, AM puts the smallest demands on receiver technology and stability, a critical point in certain areas of manufacture and use, also in situations like navigational beacons, aircraft communications and distress facilities on boats. It is the **only** system that allows simultaneous auto or manual DF whilst passing a message or simply monitoring the heading of a craft. Make a one-watter to talk to your mate on one of the vacant kHz on 10 whilst you monitor for DX! A 100W SSB with only 20dB carrier suppression puts out a 1W carrier!

There is, of course, controlled carrier; you monitor the audio and transmit only enough carrier for de-modulation of the SSB or DSB. A lot easier now with audio-controlled AVC. Reduced carrier or super modulation (our licences permit it) where the received carrier has to be emphasised at the receiver to an adequate level to de-modulate the sideband/s. Selective fading is a problem at times with any form of AM. I see no reason why an old technique used for high speed (120wpm) Morse cannot be used. This used about 8Hz audio to deviate the carrier 16Hz. Drop-outs were infrequent, and signals could be used with lower S/N ratios. With restricted openings to the UK, this was important. I have used and built this system on CW, but had not thought to apply it to AM where it would be effective. The 8Hz beat would not be noticeable. Shared channel AM BC stations find an 8Hz carrier off-set excellent.

FSK can be used effectively at hand speeds and the RX signal used to "key" a local audio oscillator; QRN/QRM holds the sig on or off. This mode is quite nice on ordinary CW.

Robert R McGregor VK3XZ
2 Wiltshire Drive, Somerville 3912

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MINI EQUIPMENT REVIEW

THE YAESU MD-1C8 DELUXE DESK MICROPHONE

RON FISHER VK3OM

THERE IS NOTHING LIKE an elegant desk microphone to add a bit of class to the shack. Not only does it add class to the general appearance, it usually adds a bit of class to the sound of the transceiver as well. The Yaesu MD-1C8 will do both in a big way. Dick Smith was kind enough to supply one with the FT-990 transceiver we reviewed recently, and I thought that really the microphone deserved a review of its own.

Let's have a quick look at the specifications. It has a basic impedance of 600 ohms and an overall response from 100Hz to 15kHz at the -6dB points. This puts it almost in the "broadcast" category. The directivity pattern is undirectional, which means it has very little pick-up from the back. This is very useful property to reduce room echo, especially when speech processing is used. A three-position switch mounted under the desk stand provides two positions of selectable bass cut. You can select either full range, -5 and -10dB cut at 100Hz.

The base section has a PTT bar with a second section for PTT lock. Up/down buttons are conveniently positioned on the base with a "fast" button in between.

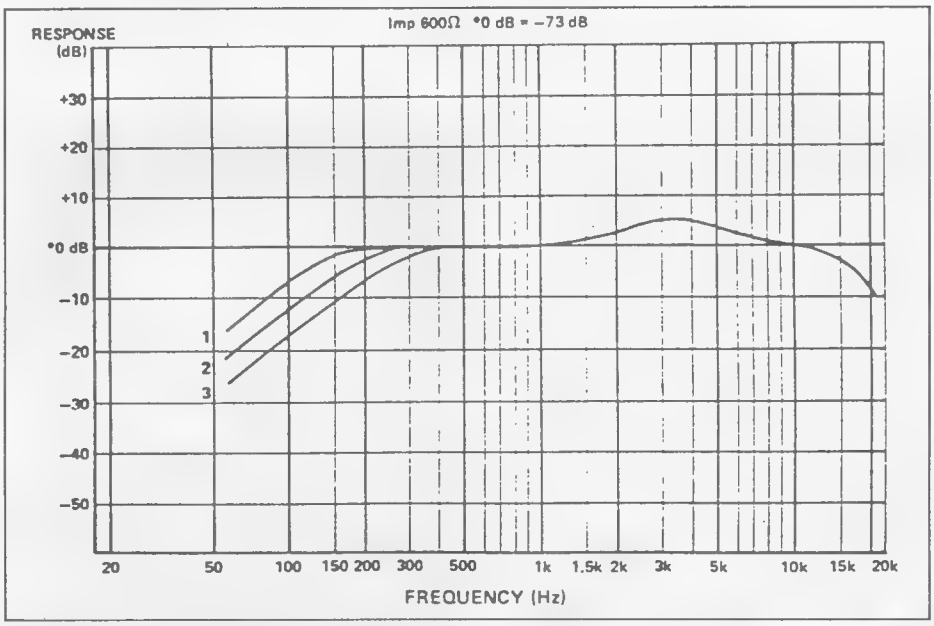
You can even use the microphone as a handheld with a PTT switch provided on the mike itself.

The Yaesu MD-1C8 On The Air

The microphone was tried on three different transceivers. In each case, the reports were very flattering, with marked improvement over the standard hand microphones. With the directional response, I found I could get back much further from the microphone without producing any noticeable room echo. In general, DX contacts preferred the bass cut switch in the third or maximum cut position, while locals liked the full bass response. It's interesting to note that while the specification rates the cut as -5 and -10dB at 100Hz, the curve supplied shows this to actually be about -12 and -18dB. This appears to be met in practice. No doubt they forgot to take into account the fact that the normal response is down 6dB at 100Hz.

The microphone comes wired to an eight-pin connector to suit Yaesu equipment. It would not be too difficult to change this to suit other makes. The MD-1C8 is priced at $169.

Our thanks to Dick Smith Electronics for the loan of our review microphone.



Frequency Response Curve of the MD-1C8

Yaesu MD-1C8 microphone

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UK Novices on the Air

As reported in the RSGB DX News Sheet, the ***first UK Novice Licence*** was issued in the last week of July this year.

Hugh McNeil, 13-year-old school student with the callsign 2E0AAA was reported operating on 28472kHz around 1100 UTC on Friday 26 July.

As far as the HF bands are concerned, UK novices are authorised to use the following frequencies/modes: (kHz) 1950-2000: CW/phone/RTTY/data; 3565-3585: CW; 10130-10140; CW; 21100-21149: 28100-29190 and 28225-28300: CW/RTTY/data; 28300-28500: CW/phone; 50620-50760 data; 51250-51750: CW/phone/data (phone: means any type of speech modulation - SSB, AM, FM etc.

Callsign prefixes are: England 2E, Scotland 2M, Wales 2W, Isle of Man 2D, Jersey 2G, Guernsey 2U, Northern Ireland 2I, in all cases followed by the number 0, 2, 3 or 4 and three letters.

STEPHEN PALL VK2PS

ar

MORSE PROGRAM COMPARISON

CODEMASTER 4.0 AND VK1 DIV (VK1PJ)

GRAHAM THORNTON VK3IY

Feature	Codemaster 4.0	VK1 Div (VK1PJ) Ver 5
Hardware Requirements	IBM PC or Compatible 192kb Dos 2.10 or later, or any 80-2 /3/486, PC or MSDOS 2.10 to 5.0	IBM XT/AT, Wang APC, Sanyo 550/555 & Commodore PC (Not C64); any IBM clone. <200k RAM
Morse speed range (wpm)	5.5-40	1-100
Hard copy to printer	No	Yes
Output from serial/ parallel ports	Not stated	Yes
Morse from ASCII files	Yes	Yes
Instant Morse echo from keyboardx	Yes	No
Keyboard entry for text	Only via other program	Part of package supplied
Text editing facility	Only via other program	Part of package supplied
Random cipher generator	Choice of group length. Contents letters or figures or both	Groups of 5 characters only; mixed letters and figures only
Saving of random group groups to disk for subsequent hard copy	No	Yes
Adjustable non-ITU spacing between characters and words	Yes	Yes
Exit option from current Morse	Yes	Yes
Pause and resume option	No	Yes
Structured learning program	Yes	No
Difficult plain language words in random order	Yes	No
Short frequently used "speed" words in random order	Yes	No
Speed error correction facility	Only by proportional selection of different Morse speed	Direct compensation of timing error
Print text from screen	Yes	Yes
Morse prosigns	Yes	Yes
Morse sending checker	No	No
Audio tone selection	Yes	Yes
Optional pre-transmission test tone	No	Yes
Operating handbook supplied	Yes	No, but can be printed from program
Price	$39.95	$5

The review copy of Codemaster 4.0 allowed only initial activation of the menu. Any attempt to change options or sending parameters resulted in a fault condition. It was necessary to re-load the program and re-set the parameters each time another option was desired. An IBM XT was used for the tests.

The following feedback has been received from Milestone Technologies Pty Ltd, supplier of Codemaster, after reading the above:

The reported "bug" has now been rectified. Some of the factors compared are of little importance. It is unreasonable to compare a Morse training package with a Morse practice generator.

We'll leave it to you, the reader, to decide these questions for yourself. Milestone Technologies' address is PO Box 699, Mt Waverley 3149, phone (03) 807 6767. The address of the VK1 Division is given on page 3 of this issue.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division

	Ref	Price to Members
ANTENNA BOOKS		
Ant. Compendium Vol 2 Software only	BX293	$18.00
Antenna Compendium Vol 1 ARRL	BX163	$19.80
Antenna Compendium Vol 2 & Software ARRL	BX294	$32.40
Antenna Compendium Vol 2 ARRL	BX292	$21.60
Antenna Handbook - Orr - 1988	BX217	$15.60
Antenna Impedance Matching - ARRL - 1989	BX257	$27.00
Antenna Note Book W1FB - ARRL - 1987	BX179	$18.00
Antenna Pattern Worksheets Pkt of 10 - ARRL	BX211	$5.40
Antennas 2nd ed John Kraus - 1988	BX259	$93.60
Beam Antenna Handbook - New ED. 1990 Orr	BX215	$17.40
Cubical Quad Antennas - Orr	BX214	$13.10
HF Antennas - Moxon RSGB - 1988	BX188	$27.00
Novice Antenna Notebook DeMaw - ARRL	BX162	$14.40
Practical Wire Antennas - RSGB	BX296	$25.20
Reflections - Software 5in disk	BX358	$18.00
Reflections - Transmission lines The Book - ARRL - 1990	BX348	$36.00
Smith Chart Expanded Scale PK of 10	BX903	$5.90
Smith Charts S/Scale 1 Set co-ord Imp/Admir Pack of 10	BX900	$6.10
Smith Charts Stand Scale 1 SET Co-or. PK of 10	BX900	$5.90
The Antenna Handbook - ARRL1991 edition	BX370	$36.00
The Truth About CB Antennas - Orr	BX219	$15.60
Transmission Line Transformers - ARRL 2nd edition	BX329	$36.00
Vertical Antenna Handbook - Lee - 1990	BX284	$16.70
Vertical Antennas - Orr - 1988	BX220	$14.30
Yagi Antenna Design - ARRL - 1986	BX164	$27.00
ATV BOOKS		
The ATV Compendium - BATC	BX270	$14.20
The Best Of CQ-TV - BATC	BX273	$15.80
CALL BOOKS		
Radio Call Book International	BX339	$57.60
Radio Call Book North America	BX338	$57.60
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CQ Ghost Ship - ARRL	BX204	$9.40
Death Valley QTH - ARRL	BX205	$9.40
Grand Canyon QSO - ARRL	BX207	$9.40
Murder By QRM - ARRL	BX208	$9.40
SOS At Midnight - ARRL	BX209	$9.40
HANDBOOKS		
1991 ARRL Handbook	BX337	$47.60
Electronics Data Book - ARRL - 1988	BX201	$21.60
Motorola RF Device Data - 2 Volumes	BX047	$22.10
Radio Communication Handbook - RSGB	BX266	$50.40
Radio Data Reference Book - RSGB - 1985	BX189	$32.40
Radio Handbook 23rd edition - Bill Orr	BX224	$53.90
Radio Theory For Amateur Operators - Swainston - 1991	BX265	$38.70
HISTORY		
200 Meters and Down 1936 - ARRL	BX198	$7.20
50 Years of the ARRL - 1981	BX196	$7.20
Big Ear - Autobiography Of John Kraus W8JK - 1976	BX363	$11.30
Golden Classics of Yesterday - Ingram	MFJ30	$18.50
Spark to Space - ARRL 75th Anniversary - 1990	BX310	$36.00
INTERFERENCE BOOKS		
Interference Handbook - Nelson - 1989	BX181	$16.00
Radio Frequency Interference - ARRL	BX186	$8.60
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Amidon Ferrite Complete Data Book	BX044	$5.90
Design Notebook W1FR - ARRL	BX357	$18.00
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Hints and Kinks 12th edition - ARRL	BX330	$14.40
Novice Notes, The Book - ARRL QST	BX298	$10.80
QRP Classics - ARRL QST	BX323	$21.60
QRP Note Book - DeMaw ARRL	BX170	$10.80
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Morse Code 2 Tapes Novice Code Course - Gordon West	BX228	$17.90
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Morse Code Tapes Set 3: 15-22 WPM - ARRL	BX333	$16.70
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Morse Tutor 5.25 inch IBM Disk	BX187	$16.70
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Amateur Radio Awards Book - RSGB	BX297	$27.00
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Low Band DXing - John Devoldere	BX195	$18.00
Maidenhead Locator-Grid Atlas - ARRL	BX197	$9.00
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Operating Manual - RSGB - 1985 3rd Edition	BX359	$25.20
Passport to World Band Radio 1991	BX346	$30.60
Prefix Map - The World Flat on Heavy Paper	BX335	$14.40
Prefix Map of North America	BX235	$7.20
Prefix Map of The World	BX234	$7.20
Radio Amateurs World Map	BX236	$7.20
Short Wave Propagation Handbook	BX268	$16.70
The Complete DXer - Bob Locher - 1989	BX194	$18.00
Transmitter Hunting - TAB - 1987	BX222	$32.30
PACKET RADIO BOOKS		
AX.25 Link Layer Protocol - ARRL	BX178	$14.40
Computer Networking Con (Packet) No 5 1986 - ARRL	BX167	$18.00
Computer Networking Con (Packet) No 6 1987 - ARRL	BX168	$18.00
Computer Networking Con (Packet) No 7 1988 - ARRL	BX184	$22.50
Computer Networking Con (Packet) No 8 1989 - ARRL	BX295	$21.60
Computer Networking Con (Packet) No 9 1990 - ARRL	BX360	$21.60
Computer Networking Conf (Packet) 1-4 1982/5	BX166	$32.40
Gateway to Packet Radio 2nd edition - ARRL	BX169	$21.60
Packet Radio Made Easy - Rogers	MFJ32	$18.50
Packet Users Notebook - Rogers	BX285	$16.70
SATELLITE BOOKS		
Oscar Satellite Review - Ingram	MFJ31	$15.30
Satellite AMSAT-NA 5th Symposium 1987 - ARRL	BX182	$15.80
Satellite AMSAT-NA 6th Symposium - ARRL	BX199	$15.80
Satellite Anthology - ARRL	BX180	$14.40
Satellite Experimenters Handbook 1990 edition	BX177	$36.00
Space Almanac – ARRL – 1990	BX299	$36.00
Weather Satellite Handbook - ARRL	BX324	$36.00
Weather Satellite Handbook Software only - ARRL	BX326	$18.00
VHF/UHF/MICROWAVE		
All About VHF Amateur Radio - Orr - 1988	BX216	$15.60
Microwave Handbook Vol 1 - RSGB - 1989	BX318	$63.00
Microwave Update Con. 1987 - ARRL	BX174	$15.80
Microwave Update Con. 1988 - ARRL	BX183	$15.80
Microwave Update Con. 1989 - ARRL	BX321	$21.60
Mid Atlantic VHF Con. October 1987 - ARRL	BX175	$15.80
Spread Spectrum Source Book - ARRL - 1991	BX365	$36.00
UHF Compendium Part 1 & 2 Vol 1	BX250	$67.50
UHF Compendium Part 3 & 4 Vol 2	BX251	$67.50
UHF Compendium Part 5 German Only	BX354	$50.20
UHF/Microwave Experimenters Manual - ARRL - 1990	BX325	$40.50
UHF/Microwave Experimenters Software 5 Inch Disk - ARRL	BX327	$18.00
VHF 21st Central States Con. 1987 - ARRL	BX172	$15.80
VHF 22nd Central States Con. 1988 - ARRL	BX173	$15.80
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VHF 24th Central States Con. 1990 - ARRL	BX322	$21.60
VHF/UHF Manual - RSGB	BX267	$43.20
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WIA Badge - Diamond		$4.00
WIA Badge - Diamond With Call Sign Space		$4.00
WIA Badge - Traditional Blue		$4.00
WIA Badge - Traditional Red		$4.00
WIA Car Window Stickers		$0.50
WIA Tape - Sounds of Amateur Radio		$7.00
WIA PUBLICATIONS		
Australian Radio Amateur Call Book - 1992		$10.00
Band Plans Booklet		$2.80
WIA Log Book - Horizontal or Vertical Format		$5.00
WIA Novice Study Guide		$1.50

Not all items above are available from all Divisions (and none is available from the Executive Office).
If the item is carried by your Divisional Bookshop, but is not in stock, your order will be taken and filled as soon as practicable.
All prices are for WIA members only – postage and packing, if applicable, is extra.
All orders must be accompanied by a remittance.

REPORT ON IARU REGION III CONFERENCE BANDUNG — OCTOBER 1991

RON HENDERSON VK1RH

THE EIGHTH REGIONAL Conference of the IARU Region III Association was hosted by Organisasi Amatir Radio Indonesia (ORARI) in Bandung, Indonesia from 8 to 12 October 1991. The WIA was represented by Ron Henderson VK1RH IARU liaison officer, Kevin Olds VK1OK, Murray Kelly VK4AOK and Roger Harrison VK2ZTB. The WIA also held a proxy from the Solomon Islands Radio Society.

Travelling to Bandung

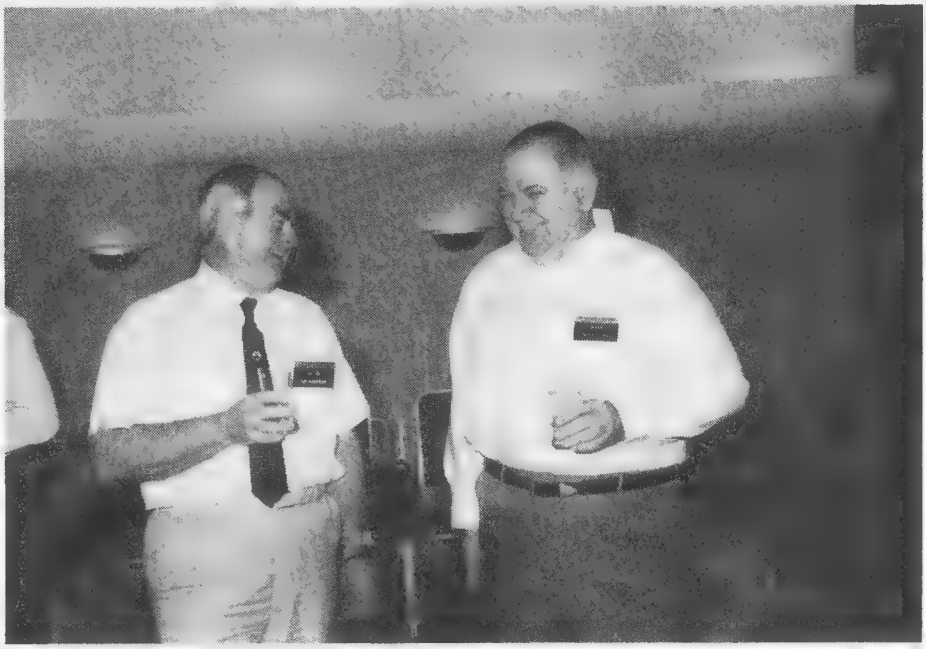
We travelled separately to the conference by air, being met at Jakarta by members of ORARI. They collected travellers from the airport, conveyed them to a hotel for a rest break then on to the railway station for a three-hour train trip to Bandung. This rest break allowed a wonderful opportunity to discuss amateur radio informally with other delegates and hear their interests and concerns before the conference proper started.

Conference Planning

On an initiative of the Directors all delegates, that is the leaders from each member society, met informally the night before the official opening to identify major issues, suggest possible committee and working party members, set the order of the agenda and identify a conference chairman. On this last point it has been the tradition for the host society to nominate a conference chairman to conduct the business meeting with support from the Association Secretary. ORARI nominated Sriwijaya or "Wid", YB0BNB, a GP who is also a qualified engineer. The host society's president, Barata YB0AY, was the Honorary Conference President and was responsible for all protocol, formal and social duties.

Opening Ceremony

The conference was opened by His Excellency the Minister for Tourism, Post & Telecommunications, Mr Azwar Anas. The minister also signed an amateur radio first day cover and stamp featuring ORARI's logo.



At the IARU Region 3 Conference, Ron Henderson VK1RH was caught sharing a good joke with Larry Price W4RA, president of ARRL.

Societies Represented

Following the official opening and morning tea the conference got down to business. Fourteen of the 24 member societies were represented and four proxies were held. The Bangladesh Amateur Radio League, BARL, and the Radio Society of Sri Lanka, RSSL, were present at a Region III conference for the first time and the Philippines, PARA was back after a six-year break.

Conference Issues

The major issues of the conference, which had been advised through papers from member societies, were referred to working groups for detailed consideration. These included constitutional changes, finances, technical issues, promotion of amateur radio and amateur radio direction finding.

Constitutional Changes

The WIA proposed a number of constitutional changes aimed to improve the management and operations of the Region III Association. In the end our proposals (for limits to Directors' appointments of three tours each of three years or age 71, the renaming of the Chairman of Directors as Chairman and creation of a Treasurer) did not succeed. Nevertheless, the constitutional working party, on which Murray Kelly VK4AOK was our representative, carried out an exceedingly difficult task in the light of a "no change" stance from JARL and produced a consensus report with a number of recommendations. The least contentious of these were adopted, but some the WIA believed were key issues did not achieve the required 3/4 majority even with a secret ballot. This was not helped by one delegate taking the afternoon off for sightseeing, thereby abstaining from voting!

Progress was made on a number of procedural matters including renaming the association "International Amateur Radio Union Region III". Procedures were revised to formalise the conference eve delegates' meeting, for all agreed it was very effective in "breaking the ice".

The Chairman of Directors was af-

INTERNATIONAL AMATEUR RADIO UNION REGION III ASSOCIATION
The 8 Th Regional Conference.October 8–12 . 1991 .
Savoy Homann.Bandung.Indonesia.

firmed the principal officer of the Association, but (in the WIA's view) not accorded the wherewithal to carry out that role.

Regional Finances

Although IARU Region III is concerned with amateur radio policy and operating matters, the finances of the organisation always come in for considerable discussion. The triennium just past has been a difficult one financially, with additional travel for WARC preparation, both for IARU meetings and to promote amateur radio with national authorities throughout the region. The finance committee, on which Ron Henderson VK1RH was the WIA's representative, was faced with a paper from ORARI in which it sought some relief from subscription rate increases. The current subscription formula is based upon a sliding scale, with large societies paying considerably less for each additional member. ORARI and JARL are the largest two societies, yet they have very disparate national incomes. This becomes demanding on ORARI.

Another problem is the loss of a fair part of small societies' contributions in bank charges just to get the funds into the Region III accounts.

The committee considered a range of options and recommended that Directors examine several radical changes, such as a flat subscription rate per member, or even per licensed amateur, and report back to member societies.

In the end a three-year budget outlay program was agreed, priorities given to those outlays and a subscription rate calculated to raise the required income. For the next three years our contributions go up three US cents per member and this will be absorbed in the 1992 fees. One key assumption is that membership numbers will hold steady at the present levels across the three years.

Technical Issues

This conference was somewhat different from previous ones in that there were no really contentious technical issues. The considerable effort put into band planning at past conferences has paid off and provided Region III with generally accepted and agreed plans. Topics discussed in working party, which was convened by Kevin Olds VK1OK, included packet radio operating guidelines, HF beacon proposals, potential uses for additional bands and contest band segments. A number of the member societies contributed their packet guidelines and a composite set was generated. It is included in WIA News on p6.

Beacons have reached the stage where the 14/21/28MHz time-switched HF beacon series is being extended to include the 18 and 24MHz bands. Over the next few years we will need to give thought to establishing more time and power switched HF beacons. At present the initiative is coming from IARU Region II which is designing beacon controllers to help the project.

Promotion of Amateur Radio in Developing Countries

The societies represented by IARU Region III range from the very large to the very small, from the quite affluent to those with limited resources to devote to amateur radio. Several papers were submitted which either described actions to assist other societies or identified means whereby societies believed they could be helped. The conference set up a working party, of which Roger Harrison VK2ZTB was an active member, to provide some recommendations. Their proposal categorised the situation into three classes and proposed means to assist in each case. One observation was the supply of electronic parts, including ICs, was not always a problem; however there was a great need to adapt existing proven circuits to accommodate the locally available components.

ARDF

Amateur Radio Direction Finding, or ARDF, is a growing sport not only in our region but world-wide. Two sets of provisional rules were examined and the preferred one from JARL adopted for the time being. A Region III committee, meeting by correspondence, was set up. The WIA has nominated Wally Watkins VK4DO, an active ARDFer, as our member.

The Next Triennium

The conference concluded with elections and selection of the next conference venue. One Director, DD Devan 9M2DD, stood down, having as he said "reached the biblical three score and ten". Six nominations were received for five positions and, after a secret ballot, the four retiring Directors, David Rankin 9V1RH (Chairman of Directors), Keigo Komuro

JA1KAB, David Wardlaw VK3ADW and Fred Johnson ZL2AMJ were re-elected, together with Sangat Singh 9M2SS the new director.

The Secretary Masayoshi Fujioka JM1UXU, was re-elected unopposed.

The WIA bid for the next conference but was not successful so it will be held in Singapore in the middle of September 1994.

Summary

In a report of this nature one can comment only briefly on the major points from the conference. In fact some 106 papers were submitted, copied to and digested by the delegates. Some, such as the beacon papers, will automatically go to the relevant areas in the WIA, in this example FTAC. A full list of all paper titles, or any particular paper, can be obtained through the Executive Office from the WIA's IARU liaison officer, Ron Henderson VK1RH.

As a final point, the WIA team, Ron, Kevin, Murray and Roger, wish to thank the Federal Council of several years past for their foresight in setting up the international representation fund which allowed this strong and effective WIA representation at Bandung.

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VHF communications

This quarterly publication, especially covering VHF, UHF and Microwaves, is essential reading for the serious VHF/UHF enthusiast.

The original is published in German by Terry Bitton, OHG, and the English language version is published by Mike Gooding, G6IQM.

1992 subscription rates are:
Surface mail $35.00
Airmail $48.00

Please forward your remittance to:
VHF Communications
c/- WIA, PO Box 300
Caulfield South Vic 3162

Subscriptions must reach the WIA by 31st January 1992 to ensure you receive your first issue for 1992 on time.

Separate remittances for WIA membership subscriptions and VHF Communications please.

REPEATER LINKING STANDARDS — INTERIM GUIDELINES

At the 27 October 1991 meeting of the WIA Federal Council, a set of repeater linking standards was adopted as interim guidelines for Australian repeater linking. Based on a paper written by Bill Scott VK4XP, these interim guidelines are now published to invite comment before formal adoption as the repeater linking standards.

If you have any constructive comment to make about these guidelines, please write to:

WIA Repeater Linking Standards
PO Box 300
Caulfield South Vic 3162
Closing date for comment is 29 February 1992

Details of Proposed Australian Standards

Proposed is a simple method which may be used as a standard way in which radio amateurs could gain access to repeater links in Australia.

The paper does **not** intend to define standards or protocols of **how** repeaters themselves should be interlinked. This remains the prerogative of the individual repeater groups. However, it sets out the ways the average radio amateur, with the minimum of extra equipment, can successfully **operate** repeater links anywhere in the country.

Short Term and Long Term Plan

The standard is designed to address both the immediate and the long term. The methods of how an amateur would access the simplest repeater links or the most complex repeater links remain the same.

The standard also allows for growth. At first, repeater groups will probably build dedicated links between repeaters in a local area. Then, as this new facility develops and expands, more elaborate switching between repeaters widely separated geographically may also occur.

It is conceivable that, in the future, amateur satellites may even be used to provide links. And then the possibility exists for every repeater to be linked to any other repeater in the country, provided the necessary equipment is installed!

The standard proposed allows for this and, from the point of view of the amateur operator, the way in which the link is made does not matter. It could be by UHF radio, cabling or satellite. Accessing and operating the link equipment would be independent of the method of linking used.

Simply Dialling up a Number

The standard is based around simply dialling up the number of the other repeater, similar to using a telephone. Call the number of the repeater you want, using a keypad which can be connected on to any transceiver. Once "dialled", you will either have the link established to the repeater you wanted, or get a number-unobtainable tone if the connection cannot be made!

To clear-down all links, simply "hang up the phone" by pushing a button and sending the clear-down tones. It is that simple.

Once a link is in service there is a "musical" tone every one minute to tell you that you are linked up.

Wireless Institute of Australia Involvement

Every repeater that has link capabilities would need a number, not unlike a short phone number. It is proposed that the WIA co-ordinate this, and that repeater groups contact the WIA to get a number for their repeater. The WIA would also be in charge of maintaining the standard to make sure it is uniform throughout Australia.

It could regularly publish lists of repeater identification numbers in the Callbook and Amateur magazines.

As well, it could be asked to review the standard from time to time, as changes to equipment and regulations occur.

The standard proposed is designed for use today under the existing DoTC regulations. It is, however, flexible and can easily be updated to handle any changes in the regulations.

Easy to Buy Equipment

To access a repeater's linking equipment, an amateur would need a telephone-type keypad on the set. This is often called a Touchtone pad or DTMF (Dual Tone Multiple Frequency) pad. These are available on many sets as standard, or are easily fitted as a DTMF microphone.

If adopted, this standard allows for amateurs and groups to build up special tone-decoding equipment which can connect externally to the receiver, say through the extension speaker or auxiliary jack. With this equipment it would be possible to display the numbers dialled, showing which repeaters are currently linked. If a connection was also made to the microphone, abbreviated dialling facilities could also be possible.

One of the advantages of the proposed standard is that equipment manufacturers could mass produce equipment to meet the new standard, and so the prices and availability of this equipment should fall within the reach of every Australian amateur.

How it Works

A quick reference "How to set up and close down a link" is included below and should serve to illustrate the method proposed.

(i) To Clear Down any Link at any Time:

Command (from amateur) —

Send tone 00#. That is, press PTT button and hold down. Then press the 0 key, press it again, then press the # key, and finally let go the PTT Button.

Response (from local repeater) —

A short pip-pip when all links have cleared down.

(ii) To Link a Local Repeater to Another:

(eg, link local repeater 1234 to repeater 5678)

Command (from amateur) —

Send tones 5678#. That is, "dial" the other repeater's number.

Response (from local repeater) —

When the connection is made, a series of short music-like DTMF tones will be heard.

These tones will be repeated every one minute the link is made and the repeater is in use.

(If the amateur had tone-decoding equipment installed, it would be possible to read these DTMF tones. For the example above they would read 3-1234-5678. The 3 means currently connected, the 1234 is the local repeater number, the 5678 is the other repeater's number).

If the connection takes a long time, a short pip is heard every one second whilst the link equipment searches for a connect path.

However, if an amateur "dials" up a repeater which cannot be linked to the local repeater, or the other repeater is timed out, a long beep will be heard. This is similar to the number-unobtainable heard on the telephone.

(iii) Enquire is the Link Connected?

Command (from amateur) —

Send tones [11]#.

Response (from local repeater) —

Either a music-like DTMF tone sequence will be heard, or a short pip-pip. The musical tone indicates a link is already established, whilst the pip-pip means all links are closed down.

(iv) Response Summary:

Pip every one second — connection being made, other end "ringing"

Music-like tones — link in service

Peep — link unobtainable

Pip-Pip — all links cleared down

Summary

This brief outline covers basically how the average amateur would operate a link. It is written in simple, non-technical terms and shows how easy it would be to operate any link in Australia, regardless of the linking method or the distance or bands involved.

Next is the more detailed technical standard which may be used by the groups which actually set up a linked repeater system. It is based around the Australian Standards Association style for standard writing and, as such, is rather practical and direct.

It is believed to be the most suitable approach to writing a standard, as it is well proven and readily understood.

Australian Standard for Repeater Interlinking

Scope:

This standard sets out interface requirements (protocol) that shall be used by an amateur station wishing to establish, clear down and have indications provided as to the status of a link or links from a local voice repeater to another voice repeater.

It shall pertain to all voice repeaters operating in any of the following modes:

frequency modulation (FM)

amplitude modulation (AM)

single side band (SSB)

phase shift keying use (PSK) with pulse code modulation (PCM)

amateur television (ATV) sound only

linear translators

This standard does not attempt to regulate the methods, protocols or standards by which the links themselves are established in the switching process. Nor does it attempt to regulate the methods used by "control" amateur stations which may switch standby equipment, change over to alternative power supplies, read equipment voltages etc.

This standard refers only to the methods of access by the "user" amateur from anywhere in Australia who wishes to establish or close a repeater link or links. It is a user-to-local repeater protocol rather than a local repeater-to-remote repeater protocol.

Application:

This standard shall be applied to any single or multiple linked repeaters.

The standard shall be applied to any repeater, regardless of geographic location or method of linking or band of operation.

Mode examples include:

FM repeater to FM repeater (single link)

FM repeater to AM repeater (cross mode)

ATV voice to FM repeater (cross mode)

PSK/PCM repeater to SSB (cross mode)

Administration and Revision:

This standard shall be administered by the Federal Technical Advisory Committee (FTAC) which shall put into place processes to regulate the application of this standard.

The standards shall be freely available to all radio amateurs who may implement it using any suitable technology.

FTAC shall *not* stipulate the technology and method of application that may be used. However, it may advise on certain known methods that may be adopted by an Amateur organisation wishing to establish linked repeaters.

FTAC shall, from time to time, review this standard in a consultative process with the appropriate repeater groups. The standard shall be reviewed at no greater an interval than 10 years.

The review dates shall be in the years 2000, 2010, 2020 etc.

Each review shall receive a new review number and date.

Once reviewed, FTAC shall effectively publicise the fact and be prepared to implement any retrospective changes in a co-ordinated manner.

Publication:

All publications shall, at least, be in
Amateur Radio magazine
Australian Amateur Call Book

User Access:

All access from the user commanding the local repeater to establish or clear a link or links to other repeaters shall be by the use of Dual Tone Multiple Frequency (DTMF) tones, often called Touchtones.

All status replies from a repeater as to the progress of a link request shall be by DTMF tones.

Repeater Identification Number:

All repeaters which are capable of being linked to another repeater shall be identified by a four-digit unique number between 1000 and 9999.

This number shall be allocated by FTAC on a first-come, first-served basis. All numbers shall be sequentially allocated, commencing from 000 and prefixed by a number of the state. For example, in Melbourne 3002, in Brisbane 4082, in Kalgoorlie 6008 etc.

FTAC shall keep and regularly update a register of allocated repeater identification numbers. These numbers shall be regularly published at an interval of no greater than three months.

User Commands:

The following commands shall be used to control a local repeater for the purposes of establishing or clearing a link to a remote repeater:

1. **Link Req.** To request a link connection from local repeater to a remote repeater the user shall send the repeater identification number of the remote repeater, in DTMF tones, followed by a hash (#). For example 1234#.
2. **Link Clr.** To clear down *all* links to and from the local repeater the user shall send tones 00, followed by a hash (#). For example, 00#.
3. **Link Enq.** To enquiries on the current status of links the user sends tones 11, followed by a hash (#). For example, 11#.

Valid Commands

The command sequence shall be considered valid when it falls within the following limits:

a. Each DTMF tone must be longer than 50ms.
b. Each tone must be less than three seconds.
c. The total tone sequence must be of less than 10 seconds.

A **link req** sequence is not considered valid until a period totalling two seconds has elapsed since the last user input to the local repeater. Input to the local repeater is determined by loss of carrier and CTCSS tones, when used.

Status Responses:

All command tones shall be re-transmitted on the local repeater. When linked, these tones shall also be re-transmitted on the remote repeater.

The following status responses shall be sent by the local repeater to a user after a valid tone sequence has been received and after all user input to the local repeater has ceased.

All status response tones shall be sent prior to any CW or other repeater ident signal.

All status response tones shall not be responded to or acted upon whilst the local repeater is timed out (due to fault or excessive user access) except the **link clr** command.

If a status response has commenced, it shall be completed before the local repeater times out.

Only valid tone sequences shall be responded to:

(1)**Link Req.** Link request. Connections being established.
(2)**Link Unobt.** Link unobtainable. Link cannot be established.
(3)**Link Est.** Link established.
(4)**Link Dis.** All links disconnected and cleared down.

Link Req. Link request. Connection being established.

This sequence of tones shall be sent to the user on the local repeater after a valid (possible) link to another repeater may be established and the equipment is in the process of establishing the link.

It shall consist of a 200ms duration transmission of DTMF tone 1, repeated at one-second intervals, for a maximum period of 10 seconds.

It shall cease on:

(a)the link connection being established, or
(b)the link unable to be established, or
(c) another valid tone sequence being received.

Link Unobt. Link unobtainable. Link cannot be established.

This sequence of tones shall be sent to the user on the local repeater after a valid link to another repeater cannot be established, and the equipment has abandoned and closed down the linking process.

It shall consist of a 1000ms duration transmission of DTMF tone 2.

Link Est. Link established.

This sequence is sent to the user on the local repeater immediately the link to a remote repeater is established. **Link est** tones shall also be sent every one minute thereafter whilst the local repeater is transmitting and the link is in use.

All status response tones shall be sent prior to any CW or other repeater ident signal.

All status response tones shall not be responded to or acted upon whilst the local repeater is timed out (due to fault or excessive user access) except the **link clr** command.

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It shall consist of a 1000ms duration transmission of DTMF tone 2.

Link Est. Link established.

This sequence is sent to the user on the local repeater immediately the link to a remote repeater is established. **Link est** tones shall also be sent every one minute thereafter whilst the local repeater is transmitting and the link is established.

The **link est** tone sequence shall also be sent in response to a **link enq** command sequence, and the one-minute interval shall be reset.

The **link est** tone sequence consists of
(a) tone 3
(b) the repeater identification number of the repeater through which the **link req** command was sent
(c) followed by the identification number of the repeater to which the link was requested
(d) 100ms pause (if necessary for multiple links)

For example, a **link req** was made through repeater 1234 to link to repeater 5678. The **link est** tone sequence would consist of the tone 3 12345678.

Each tone is to be of 50ms duration. The total would then be of 400ms.

Should more than two repeaters be linked, then the sequence would be extended with a 100ms pause between sequences. For example, a user at repeater 9012 successfully linked to repeater 1234, after a link had been previously established with 5678. Therefore the sequence would be, 3 12345678 <100ms pause> 90121234.

Link dis. All links disconnected and cleared down.

This sequence is sent to the user of a local repeater after all repeater links have been cleared down. This tone sequence shall also be sent in response to a **link enq** command sequence.

It shall consist of a transmission of tone 4 for a duration of 200ms, followed by a pause of 100ms, followed by a further transmission of tone 4 for a duration of 200ms.

Operations:

Whilst the repeater is establishing a link, normal repeater operations shall continue. If a local repeater times out, the **link est** tones shall not be sent, but the link shall remain established.

If a remote repeater is timed out when a **link req** is made, the link shall not be permitted to be established until the remote timeout has cleared.

Link est tone shall also be transmitted on the remote repeater or repeaters simultaneously with the local repeater. Other status tones shall not be transmitted on the remote repeater or repeaters.

Whilst a repeater is linked to another, it shall continue to operate as a repeater, with re-transmissions on its assigned output frequency for a correctly received input signal and with timeout functions enabled.

All local input to a repeater must override all linked input from a remote repeater or link equipment.

Where a change of link status has occurred whilst a repeater is in local use, the tones used to indicate the new status shall be stored and re-transmitted.

CTCSS Tones for Interference Suppression:

To reduce the interference caused by adjacent services, some repeaters may be fitted with CTCSS sub-audible tone decoder equipment. Each repeater fitted with CTCSS decoders for interference suppression shall have three decoders on the frequencies of 123Hz, 141.3Hz and 162.2Hz fitted.

When in use, the local repeater equipment shall consider that *both* the *COR* and *one* of the CTCSS sub-audible tones listed above are present before a correct access to the local repeater and subsequent link can be established.

CTCSS Tones for Link Permissions:

Some users are not permitted to have their transmissions re-transmitted via a link from another remote repeater, due to licensing limitations. Typical examples include novice licensees on 6m or 70cm and limited and novice licensees on HF repeaters.

Those who are permitted shall use CTCSS tone 141.3Hz to accompany all transmissions into a local 2m, where the user expects re-transmissions from a remote repeater on the 6m band and UHF and higher bands.

And where the user expects re-transmissions from a remote repeater on the HF band, use shall be made of CTCSS tone 162.2Hz to accompany all transmissions into a local repeater.

In all cases, the remote repeater shall consider that the appropriate CTCSS tone is present at its link input before the subsequent re-transmissions on that remote repeater can occur.

Where multiple repeaters are linked, the CTCSS tone requirement shall apply only at link input to those repeaters on which licence violations are to be restricted.

Tone Levels:

All transmissions and re-transmissions of DTMF tones shall be at 50 percent of the maximum voice level for that mode of transmission.

All CTCSS (sub-audible) tones shall be at 10 percent of the maximum voice level for that model of transmission.

Auto Clear Down:

Where a repeater licensee chooses, and in *all* cases where more than *three* repeaters are linked simultaneously, the repeater links shall have an auto clear-down circuit in operation.

The auto clear-down shall occur if no input is received within 20 seconds on any of the repeaters linked at that time. This process shall cause the most recently established links to be cleared successively in the opposite order from which they were established until a maximum of three repeaters remain linked.

A **link enq** response shall occur on all repeaters that were linked, prior to the auto clear-down operation occurring, to indicate to users the new link status.

Auto Link Requesting:

Where a repeater licensee chooses, auto link requesting circuits may be in operation. This circuit shall re-establish links to a maximum of three repeaters, if no input is received on a nominated repeater within 20 seconds.

If an auto link request was not successful, due to operations of other repeaters or link equipment, it shall not be repeated within one hour.

A **link enq** response shall occur on all repeaters that were not linked, prior to the auto link requesting operation successfully re-linking them, to indicate to users the new link status.

Typical Questions and Answers about Australian Repeater Linking Guidelines

Will Scott VK4XP

Question 1: How can I use the standard linking commands to set up links with three repeaters simultaneously?

Linking to many repeaters is as simple as linking to only one repeater. Imagine your local repeater is 2233 and you wish to link to 1234 and also 5678.

First establish the link with one of the other repeaters, say 1234, by sending 1234#. The repeater will respond with a music-like tone sequence 3-2233-1234.

Next make the link with the second repeater by sending 5678#. The local repeater will again respond with a music-like tone sequence of 3-2233-1234-5678.

You are now linked to three repeaters simultaneously.

Every one minute you will hear the same music-like tone sequence, so you and amateurs on other repeaters can tell the link is set up. To clear all links down, send 00# and the repeater will respond with a short pip-pip to indicate all is clear.

Question 2: How did the repeater numbers come about?

To identify each repeater's "phone number" numbers had to be found that

would make it easy to use, and that no two numbers were the same. The repeater numbers are arranged so the state is the first part, and a simple serial number is the second part.

An example is the first repeater registered in Victoria would be 3001, next would be 3002. The standard calls for the WIA to circulate lists regularly. (Alternative — nearest postcode).

Question 3: Why are three sub-audible (CTCSS) tones used?

These tones have two purposes and are used *only when necessary*. Repeaters which do not need them are not fitted with them.

The first purpose is to reduce interference from other services on radio sites with lots of radio equipment in the close vicinity.

The second is to exclude certain holders of amateur licences from being accidentally re-transmitted on a linked repeater they are not permitted to use.

The tones set out in the standard effectively say that:

Novices use tone 123Hz only when repeaters are wired for interference suppression.

Limited calls use tone 141.3Hz both for access to 70cm and other repeaters from 2m, and for interference suppression.

Full calls use tone 162.2H both for access to 10m repeaters from VHF or UHF repeaters, and for interference suppression.

This way a radio amateur has to install only a single tone CTCSS card for access to all repeaters, in any band, in Australia.

Question 4: How much does it cost?

Generally the cost is very low. The basic intention is to make sure a suitable Australian standard can be established at minimum cost to the amateur, but be easy to use with readily available equipment. Because of this, some repeaters may be a little more complex, but they make it easier and cheaper for you to use.

The first thing you will need is a DTMF microphone, which is used to turn links on and off. It runs out between $30 and $60 for a new microphone or a keypad.

In a limited number of cases, where repeaters on other than the 2m band are involved, you will also need a CTCSS board. This small board is installed in your radio and is about the size of a postage stamp. This board will need to be set up on one of the three standard CTCSS tones, depending on your licence. Cost runs out at about $40, with installation costs extra.

Question 5: As a club, which CTCSS tone decoders should we install in our repeater for interference suppression?

You should install all three Australian standard decoder cards and wire them all in parallel. This would mean that any one tone would access the repeater.

The cost to you as a club is a little higher than for the individual. But for the amateur community as a whole, it is cheaper to install three decoders in each repeater with interference problems, than to have two or more encoders in each amateur transceiver.

Question 6: What about my rights to determine if and when I wish to have my transmissions links to another repeater?

This is catered to by the standard. Firstly, if you wish to know whether a repeater is linked to another repeater, simply send the **link req** tone sequence of 11#. The reply will be either a pip-pip which means there are no links in service, or a musical tone sequence, indicating a link is established.

Next you may at any time clear *all* links by sending 00#, and a pip-pip will be heard indicating all clear.

Finally, if you are in the middle of a contact and another station using a remote repeater links into your local repeater, you will hear the **link req** tone sequence as the link is established, and then every one minute you will hear the musical tone sequence to indicate a link is up.

At no time, therefore, will you be "in the dark" as to what the status of the linking is, and always you will have the opportunity to clear down all links by sending the 00# tones.

Question 7: The DTMF tones will be easily heard and encourage "phantom button pushing".

Unfortunately, any repeater is open to abuse, and most people agree that, if methods can be adopted which reduce this abuse at a reasonable cost, they should be employed.

For linking purposes, the CTCSS tones are sub-audible and normally should not be heard. The DTMF tones, however, are required to be heard so you can work out what is happening with the linking equipment.

Not every station will be in a position to have tone decoding or similar equipment, to read high-speed signals coming from the repeaters, telling you what linking is taking place. So the simple solution is that stations must simply listen to the tones and read them by ear.

The tones you are required to recognise, like the telephone, are if a link is established (music link tone sequence), if a link is trying to be established (pip every one second), if a link cannot be established (long peep), or if the link is clear (pip-pip).

Future revisions of the standard, as the technology becomes economically available, may make use of high-speed ASCII burst type of tones, which are less attractive to button pushers and less annoying to the general user.

Question 8: What is auto clear-down and why is it required?

Auto clear-down is an automatic process that a club may place on its repeater linking system. It will disconnect a link if no-one uses it and leaves it idle for a while. The standard recommends if this is employed auto clear-down should occur after a period of 20 seconds of no use.

The DoTC requires that, for permanent linking, a maximum of three repeaters may be employed, and that to link more than three repeaters, temporary links must be used. That is, it is permitted to selectively link more than three repeaters together for a limited period of time.

To satisfy this requirement, the linking standard calls for auto clear-down of one or more repeater links when more than three repeaters are linked together. The clear-down would bring the links back to three repeaters or less, but only on completion of a contact.

This should occur if there is a period of no use for a maximum of 20 seconds. The links should clear down in the reverse order of being established.

As well as this, the standard calls for a link status to be broadcast over each repeater when a change occurs.

Question 9: How will changes to the regulations and improvements in technology affect the standard?

Naturally it will depend on the particular change in question. Generally speaking, any standard should be flexible enough to withstand the tests of time, and should not get you into a corner you cannot escape from in the future.

The Australian Linking Standard proposed is firm enough to give long-term guidance, whilst being flexible and able to adopt new technology an methods as they become available. If a review has not occurred within a certain time period (10 years), the standard calls for an automatic update.

Question 10: As a club, we should always retain the right to switch the repeater linking on and off. How does the standard cater to this?

The standard is designed to cover access by an amateur station to the local repeater only. That is, only the tones that would be sent and received by the user amateur are regulated in the standard.

As a licensee of a repeater you do, indeed, have the right of control to switch a repeater and links on and off when desired. What tones or methods you employ to do this are *not* covered by the linking standard. You may use any appropriate method you wish.

Similarly, the standard does *not* cover how your repeater establishes its link with another repeater. This again is your prerogative. The standard simply says that if a user requests a link, and linking is possible, that your repeater provides it using the method most suited to your needs.

However, it is important to recognise that, in all cases, the users too have the right to close down a link if they do not want their transmissions to appear on another repeater. All "permanently" linked repeaters must be able to have the links cleared by a user amateur. (See also question 11 below).

Question 11: How and where is auto re-linking used?

Where repeater licensee/s require that a chain of repeaters normally remain in a linked state, the establishment of those links is by the same method described in question 1.

Similarly, the links must be able to be disabled using the 00#, the link clear-down tones.

But, if the licensee/s want to have the repeaters normally linked, the repeater system may automatically re-establish the link using an auto **link req**, once a user has completed the contact. This is usually after 20 seconds of no further input.

If the auto re-linking fails on its second attempt, auto re-linking must not attempt another **link req** for one hour.

Question 12: How long will it take to implement this proposed standard?

It is suggested that a five-year period be used to change over any existing repeaters and links not complying with the standard.

This will allow an adequate time period to replace existing equipment as it simply "wears out" or requires routine maintenance.

Help stamp out stolen equipment – keep a record of all your equipment serial numbers in a safe place

A CENTURION AMONG US

A PROFILE OF HARRY ANGEL, VK4HA
DAVID JONES VK4KLV

JUST ON 100 YEARS AGO, there came into the world one Harry Angel, the first of a family of seven children. Born in Essex, UK, Harry's early interests were as a mariner. With a bit of larrikin in him, a strength which he still displays today, Harry challenged the worst that old Mother Nature could do. He crewed on an oil tanker to Philadelphia, then took a four-masted barque, the *"William P Fry"*, around Cape Horn to San Francisco. So rough was it in rounding the Cape that Harry was washed overboard, only to be washed back on a few minutes later! Then he crewed a windjammer to Sydney, a voyage which took some three months. Some time later, he returned to the sea as an Able-Bodied Seaman, crewing on many an ocean-going cargo ship. During his service in the Merchant Marine, Harry travelled all over the world, twice visiting the U.K.

When war was declared, Harry joined the AIF, enlisting with the First Division. He was among those who landed at Gallipoli. After service, he returned as a Recruiting Sergeant, finally settling in Queensland as a transporter/carrier/driver after the war.

With exposure to mechanical and electrical devices, Harry rapidly rekindled his interests in the developing medium called radio, something he was first exposed to in the Merchant Marine. He established Angel's Radio Service, based at St Lucia in Brisbane. This commenced in the early 1930s, and continued with his XYL Rebecca until she passed away in 1973. But the radio bug had bitten! It wasn't long before Harry decided that receiving was too small a part of the whole picture — how about experimenting with transmitters and antennas? So, in 1935, Harry sat for his AOCP, and subsequently devoted the rest of his life to pursuits in radio and electronics. His list of achievements reads like a glossary of terms, with numerous awards and certificates, including DXCC, all using home-brew equipment.

Harry's family life has been shared with his children, their children, and their children's children. He and Rebecca had two sons, Ron and Harrold, and a daughter Lillian, with whom Harry now lives. Ron gave Harry two granddaughters, Robyn and Delma, who between them gave him five great-grandchildren.

Harrold gave him two grandchildren, Brian and Henry, who also gave him great-grandchildren. Lillian gave him two grandchildren, Fay and Robert, and between them, they've given Harry six great-grandchildren, twins Rechelle and Tamara, Tegan, Matthew, John and Tanya.

So now you know a little about the man behind the smile, Harry Angel VK4HA. On 14 December, Harry will celebrate his 100th birthday. He's planning to be active on 40m, and the Queensland Division would like to encourage all Harry's friends to give him a call on the Coral Coast Group Net, at 8am EAST, on 7060kHz. If you can, send him a birthday card, just so you can wish him happy birthday yourself. Please send it to Harry's Birthday, c/- GPO Box 638, Brisbane, 4001, so that it's received by the 12 December. You know Harry just could be the oldest living amateur, full stop!

So Happy 100th Birthday, Harry Angel VK4HA.

DAVID VK4KLV

FROM RUSSIA WITH LOVE

JOHN MAHONEY VK4JON
PO BOX 194, INNISFAIL 4860

WELL, THAT'S HOW THE local newspaper headlined the article when it published Musa's photos, but there's more to it than the title of a novel.

It started out as a simple computer problem. How do I access the escape codes on my printer? My XYL introduced me to a teacher at the Innisfail High School who taught maths and something called "Information Processing and Technology", Stan Robertson. When Stan found out I was a radio amateur, all thoughts about printer codes went out the window. He enlisted my help in his course. "Er, John," he said, "amateur radio would be a good way of teaching my year 11 class about IPT." (No prizes for guessing which high school now has the callsign of VK4IHS).

At first I made an attempt to organise a contact with a secondary school in Japan. A letter was drafted, then sent to an interpreter to be copied into Japanese characters so that both English and Japanese versions could be sent to the JARL. To date no reply has been received, but I did ask for a school that could speak English.

When I saw in the Amsat newsletter an offer to schools in Australia to have the opportunity to contact the American astronauts on board STS-39, I jumped at it. We all know the results of that, but we had a go. A phone call to Maggie VK3CFI to find out if we were the mugs led to an attempt to contact U2MIR on packet. It took a few orbits to organise, but finally the big day arrived when the students from Innisfail High were to have a QSO on packet radio with a Russian spacecraft. You wouldn't want to know about it! Murphy was around, so no QSO. Still, not every experiment works. I was able to contact U2MIR when no-one else was here, so I uploaded some questions the students gave me, and next day had the reply. By now, Musa and I had almost a regular sked going. I gave him some dates from which to choose one suitable for him and, on 1 May, had a shack full of teachers, parents, students and a neighbour with a video camera. Results? Murphy still lives.

Two days later we had another go, and this time contacted Musa by packet and voice. We were the third school in the world to do this. The first was Maggie VK3CFI, with students from the school at which she teaches in Colac, and the second, I understand, was in France.

Participants at Innisfail High School (from left) John Mahoney VK4JON, Stan Robertson (science teacher), Glen Jacobson, Jodie-Lynn Bryce, David Plath, Rickie Philp and Paula Robinson. (Courtesy Innisfail Advocate*)*

The gear was nothing fancy. Just a Kenwood TM221A with a half-wave vertical antenna at about 30ft.

Everyone who wanted one, got a copy of the video. The Innisfail newspaper gave us excellent support, as did 4KZ radio. The Queensland Education Department helped us with a news release, so for a while we had more phone calls than we could cope with.

Just a few days ago interest was rekindled by the arrival of a short letter, a QSL card and three photos from Musa. We had sent him a copy of the video, a QSL card signed by the students and teachers, and all the newspaper cuttings I could lay my hands on. His reply is dated 24.8.91. The card etc was placed in a Russian envelope and then put into another envelope which was stamped and postmarked in Japan. It arrived sometime while I was on holidays at the end of September. (Musa's home call is now UV3AM — Ed).

As a result of these endeavours, Innisfail High School now has an amateur radio club with its own call. Stan is studying for his limited licence so the school club can operate without external assistance. They will have to put up with me for the moment, but that won't be a problem until they can get some equipment. By then, he'll be qualified. In the meantime, how does this printer work, and where are these other satellites ....? **ar**

Autographed photo of Musa Manarov. The Russian handwriting translates as "(To) John VK4JON OM, (from) Musa Manarov U2MIR. (In) good teaching. (signature) 24.08.91." (Courtesy Musa Manarov)

SURPRISE PARTY FOR PIERCE HEALY VK2APQ

TO CELEBRATE THE 80TH birthday of that well-known amateur, Pierce VK2APQ, a host of long-time amateur friends, plus relatives and neighbours, gathered at the Cataract Park Scout Camp on Sunday 18 August. It was a great day, and one that obviously came as a very genuine surprise to the guest of honour. For once Pierce was stuck for words. He was with people he had not seen for goodness knows how many years. Many had travelled for hundreds of kilometres to join with Pierce on this special event. There were also scores of apologies from people who could not be there for many reasons, the main one, of course, being travelling distance. Many of these were interstate friends.

Among those present were George Pile VK2GP, Phil Watson VK2ZPW, Syd Molen VK2SG, Bill Hall VK2XT, Alan McLeay VK2PII, Bill Storer VK2EG, John Cannon VK2NJC, Roy Parton VK2KO, Sid Ward VK2SW, Chris Cowan VK2PZ, Norma Stanley VK2BNS, Tony Mulcahy VK2ACV. Many of the above amateurs had their wives with them. On a quick count-round among the amateurs present, it was found there was a total of more than 500 years of active amateur radio involved.

Left to right: Sid VK2SW, Pierce VK2APQ, Roy VK2KO, Bill VK2EG

Bill Hall and Chris Cowan took out the honour of being the "longest on the air", with each boasting 61 years licensed AR to his credit. Hot on their heels was the guest of honour with 52 years, and Syd Molen with 47 years.

It was a great day and one for which Pierce's daughter Pat and family, who organised things, can be justly proud. See you on your 90th, Pierce. Congratulations on the 80th.

SID WARD VK2SW ar

BOOK REVIEW

On Ultra Active Service

by Geoffrey St Vincent Ballard

REVIEWED BY JIM PAYNE VK3AZT

This book tells the gripping and hitherto top secret story of the Australian Signals Intelligence effort during WWII. Ballard was one of the elite few who had access to the material produced.

The story travels with Special Wireless sections through Greece, Crete and Syria where Axis communications were intercepted. The story then shifts back to Australia, and covers training in Kana (Japanese Morse). Interception and code-breaking methods are detailed and interspersed with brief unit histories, poems, photographs, personal anecdotes and references to the important roles played by the women's services. Sigint required close co-operation with other British and US forces in the SWPA and SE-Asian theatres, and some of the narrative makes fascinating reading. Ultra was the top secret codeword for intelligence derived from enemy high grade cyphers.

This large book, with colour illustrations, is available from Mr Steve Mason, 2/18 Kasouka Rd, Camberwell Vic 3124, phone (03) 882 6735, price $50. ar

BOOK REVIEW

The Magic Spark

50 Years of Radio in Australia,

R R Walker

ISBN 7256 0116 7
THE HAWTHORN PRESS, MELBOURNE, 1973

Subject: History of Commercial Radio in Australia, 1923-1973

This book of 192 pages and A5 size chronicles the development of commercial broadcasting in Australia from its beginnings in 1923, largely initiated by amateurs and budding entrepreneurs, through to the 1970s domination by large corporations and, of course, the ABC network. The book has limited technical information and concentrates on the personalities who developed commercial radio stations as well as details of the careers of well known presenters, but it does have some interesting historical snippets concerning the extensive amateur involvement in early wireless broadcasting.

Although amateurs "broadcast" musical and classical items and AWA sent out "wireless concerts" in the early '20s, the first official broadcast was from station 2SB in November 1923. 2SB (which was later changed to 2BL because the original call sounded like its rival 2FC) was operated by Broadcasters (Sydney) Ltd with an amateur licensee, W J Maclardy 2HP, as a major shareholder and operator. He was also the publisher of *Wireless Weekly*. Other amateurs mentioned in the book include C V (Pa) Stephenson 2IY, who started 2UE (originally 2EU after his business Electrical Utilities), Harry Douglas 2HD (Newcastle) and Edward Gold 4GR (Gold Radio, Toowoomba).

The book has a number of black and white photos and an appendix which lists all commercial licensees since the inception of broadcasting up to 1973. The book was released in 1973 to coincide with the celebration of 50 years of commercial radio.

Original price of the book was $5.95, and it currently sells for $5 to $10 on the secondhand market. **VK2DYM**

ar

amateur radio action

"Ηουσε αδϖερτισεμεντΠ φορ Αματευρ Ραδιο Αχτιον μαγαζινε το αππεαρ ιν ΩΙΑ φουρναλ Αματευρ ΡαδιοΠ."

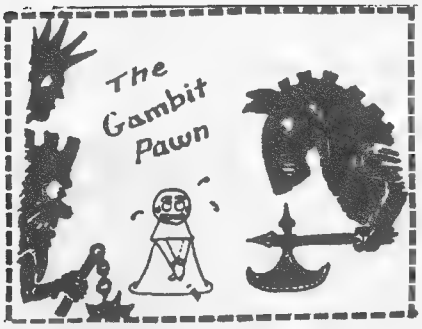
For subscription details to just about anywhere, phone Grant Manson on (03) 601 4222

If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.

another CC design

Radiochess

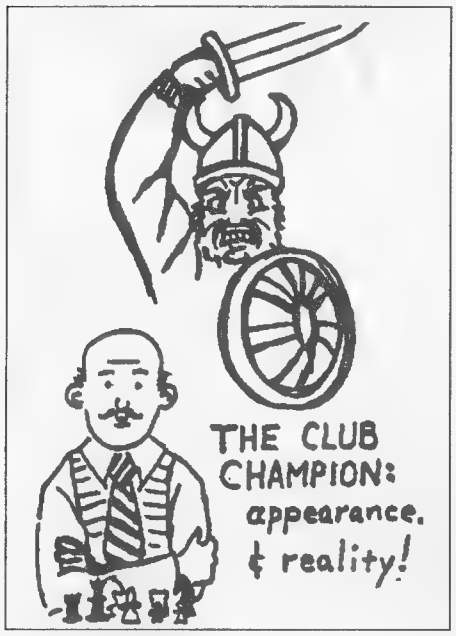
BY VINCENT LUCIANI K2VJ
218 W REVERE AVE
NORTHFIELD NJ 08225 USA

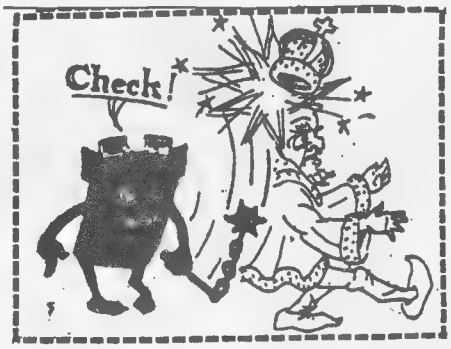


IF YOU WERE TO DISCUSS THE America's Cup with other than ham radio operators, you would surely be discussing sailing ships.

But if you were to read "America's Cup" within these pages, you would do well to suspect amateur radio, because what we are really talking about is the America's Cup for Radiochess, an international sport twice conducted on the ham radio bands.

Radiochess, you see, is a thriving spinoff from our amateur hobby, one you might like to know about if you enjoy chess, no matter your skills. After all, most of us have a less than keen awareness of the game's sometimes astounding collection of titled niceties. But, not to worry- there is always someone to cheerfully assist learners while beating them at a match.





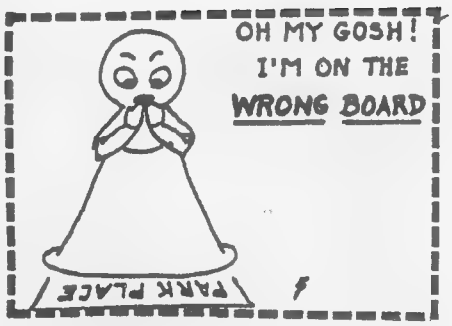
CARI- Chess & Amateur Radio International- was formed in 1981 as the vehicle by which to enable chess-playing hams to find a companion on the bands. Over the years, CARI - the longest-running radiochess organization in the world - has sponsored nets, matches between schoolkids across the US, and even between chess clubs in different countries.

Peaking earlier at approximately 350 members from 15 countries, members stay in touch via its official publication, *CARI News,* which lists chess nets and also correspondence from members including descriptions of their over-the-air games, invariably those they've won.

Non-hams have also joined CARI. With the advent of novice SSB on the 10m DX band in the US, the enticement has been great and many have since become licensed.

The new US no-code licence may also help because there are several who enjoy their radiochess on 2m repeaters. It is all a matter of finding someone for a game - which is, and was, the original CARI motivation.

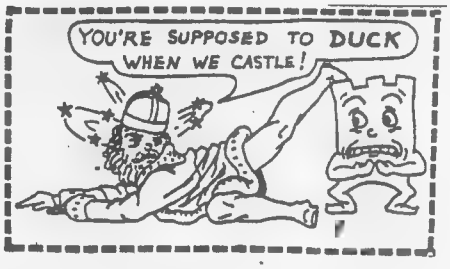
On the "America's Cup for Radiochess" thing, the Aussie-New Zealand team won the first meet, US the second, in a tie-breaking game that began on 20 metres, went on for eight hours, ending up on



40m. They still talk about it as a pacesetter for ultra-conservativism in chess.

CARI President and newsletter editor/publisher John Dould, WF1L, himself a master chess player and noted CW op, (he handles 40wpm manually in QSO) provides newcomers with a sheet that explains how to send moves over the air either by voice or CW. One game makes you an expert in its application.

If you like chess, and if you like ham radio, the melding of these two fine hobbies invariably sets up a chemical reac-

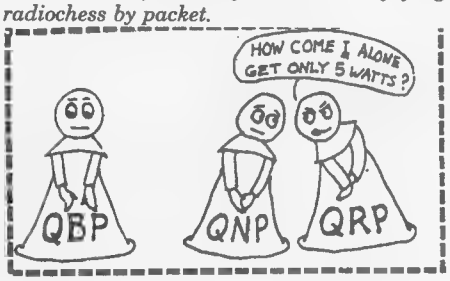


tion to participants that is highly pleasing and rewarding.

Good luck. Watch out for the deadly, heart-stopping, "queen on delta seven takes knight on delta four. Check mate!"

ar

CARI membership is a mere $US10 per year. Simply send cheque made payable to: John Dould WF1L, 22 S Athol Rd, Athol, MA 01331, USA. Send SAE & IRC to obtain information on sending moves, etc. Also, be sure to give name, QTH, licence class, bands and modes, for many are now enjoying radiochess by packet.



FT-767GX BASE-STATION MULTIBAND TRANSCEIVER

2 YEAR WARRANTY

The FT767GX is the *ONLY* transceiver that offers such a high level of performance on all HF amateur bands, as well as on the 6m, 2m and 70cm bands. Features include all amateur band coverage from 1.8 to 440MHz (100W max HF, 10W max VHF/UHF), all mode operation on all bands (SSB, CW AM, FM, FSK), HF receiver covering 100kHz to 30MHz with up to 104dB dynamic range, inbuilt automatic HF antenna tuner, digital wattmeter and auto-calculating SWR meter. Also includes handheld MH-1 microphone.

Cat D-2935

HF, 6m, 2m, 70cm **$3295**

SAVE $200

LIMITED STOCKS

FC-757AT AUTO ANTENNA TUNER

A quality HF auto antenna tuner designed to provide all the antenna switching, matching and metering requirements of the modern amateur station. Designed for the FT-757GX series which provide automatic band switching, it can also be powered by an independent DC source and used with any other 100W HF transceiver.

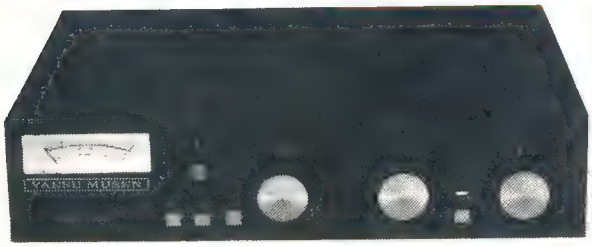
The microprocessor allows fast, impedance matching using a modified pi-L network with a power handling of up to 150watts. An inbuilt 100 watt dummy load is provided along with an in-line RF Wattmeter and auto calculating SWR meter.

Specifications

Freq. Coverage:	All HF amateur bands (1.8 - 30MHz)
Matching Range:	25 to 100 ohms (1.8 - 2.0MHz) 10 to 250 ohms (other amateur bands)

Cat D-2942

$699



FC -700 ANTENNA TUNER

An ultra compact antenna tuner designed for operation on the 80-10 metre amateur bands (including WARC). The Yaesu FC-700 offers outstanding performance and unbeatable reliability. It includes a built-in SWR and power meter (15 and 150 watt scales) and internal, selectable 50 ohm 100W dummy load. Provides a 50 ohm load to the transceiver when the antenna impedance is within the 10-250 ohm range.

Cat D-2917

SAVE $30 **$299**

FT-290RII 2M MULTI-MODE TRANSCEIVER

The all-mode, transportable transceiver for serious field or mobile operations! The FT-290RII features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM, while mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make these units very simple to operate. Each unit comes with a FBA-8 battery holder for nine C size standard or NiCad batteries (not supplied), antenna, and handheld microphone. The FT-290RII with flexible rubber antenna covers 144-148MHz.

Cat D-2875

2 YEAR WARRANTY

$699

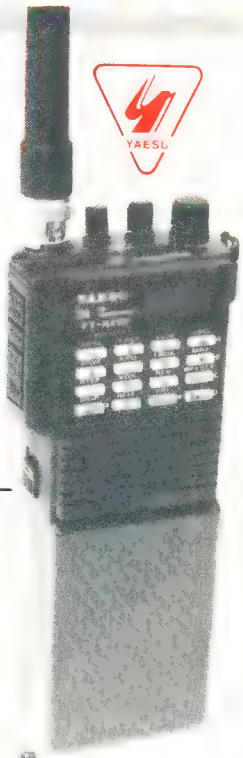
DICK SMITH ELECTRONICS

MAJOR DICK SMITH ELECTRONICS AUTHORISED STOCKISTS:

NSW: ARMIDALE: New England Electronics 711655 BALLINA: Ballina Electronics 867022 BATEMAN'S BAY: Baycity Sight & Sound 725030 BERMAGUI: OZTECH Electronics 934242 BOWRAL: Bowral Electrical Supplies 611000 BROKEN HILL: Hobbies & Electronics 884098 COOTAMUNDRA: Cootamundra Music & Lite 422561 COFFS HARBOUR: Coffs Harbour Electronics 525684 DENILIQUIN: Deni Electronics 813672 DUBBO: Chris's Hi Fi 828711 FORSTER: Forster Village Electronics GOULBOURN: Tunlive 22 1288 545006 GRAFTON: Repairs & Spares 421911 GRIFFITH: Miatronics 624534 INVERELL: Inverell Electronics 221821 KEMPSEY: P&L Leonard 631134 LEETON: Leeton Audiotronic 532800 LIGHTNING RIDGE: Lightning Ridge Newsagency 290579 LITHGOW: Douroy Photographics 513173 LISMORE: Decro Electronic Services 214137 MOREE: Moree Electronics 522091 MUDGEE: Headware 723895 MURWILLUMBAH: Strings & Things 723684 NARRABRI: Namoi Computer Service 923274 NELSON BAY: Nelson Bay Elect & Hobbies 813685 NOWRA: Nowra Electronics 210722 PARKES: Strad Music Ctr 623366 PORT MACQUARIE: Hastings Computer Service 834574 RICHMOND: Silicon Crafts 784101 ULLADULLA: Coastal Electronics 553989 WAGGA WAGGA: Phillips Electronics 216558 WELLINGTON: Wellington Service 452325 WINDOR: Silicon Crafts 776722 YASS: Warmington Electrical 261116 YOUNG: Keith Donges Electronics 821279 **VIC:** ARARAT: Jerram Electronics 522345 BAIRNSDALE: LH & LM Crawford 525677 BENALLA: North East Electronics 622710 COLAC: Colac Electronics 312847 MILDURA: Pullman Auto Pro 232882 SHEPPARTON: Andrew Guyatt Electronics 219497 SWAN HILL: Nyah District TV Service 329303 TRARALGON: Traralgon Electronics 741699 WARRAGUL: Roylaine 234255 WARRNAMBOOL: Koroit St Elec Services 627417 **QLD:** AYR: Delta Electrix 831566 BOWEN: Delpro Agencies 86 3477 BUNDABERG: Bob Elkin Electronics 521785 CALOUNDRA: Electro-mart 918533 DYSART: Dysart Videotronixs 582107 GLADSTONE: Electronic Enterprises 726660 INGHAM: Masons Electronics 763188 INNISFAIL: Innisfail Hi-Fi 612014 KINGAROY: MD & MM Siegle 624535 MACKAY: Stevens Electronics 511723 MARYBOROUGH: Keller Electronics 214559 MOOLOOLABA: Dalma Services 448666 NAMBOUR: Nambour Electronics Shop 411604 PIALBA: Keller Electronics 283749 STANTHORPE: Granite Belt Communications 813333 **TAS:** BURNIE: Electronic City 314760 DEVONPORT: Al Electronics 248322 LAUNCESTON: Kitronics 344555 **SA:** MT GAMBIER: Hutchesson's Communication Ctr 250400 PORT LINCOLN: Basshams TV & Comp World 822788 WHYALLA: Eyre Electronics 454764 **WA:** ALBANY: Micro Electronics 412077 BUNBURY: Micro Electronics 216222 GERALDTON: Batavia Lighting & Electrical 211278 KALGOORLIE: Today's Electronics 215212 KARRATHA: Pilbara Office Supplies 854836 MANDRAH: Micro Electronics 5812206 PORT HEDLAND: Ivan Tomek the Elect 732531

BATTERY BONUS OFFER!

FT-411E ENHANCED 2m HANDHELD



Our best 2m handheld! The enhanced FT-411E now provides both improved receiver sensitivity and better rejection of out-of-band signals, whilst retaining its compact size (55 x 155 x 32mm) and ease of use. The multi-function back-lit keypad allows fast frequency entry, plus programming of the 49 tuneable memories, setting of the programmable 'power saver' system and a host of other convenient functions. The microprocessor control system also features 2 VFOs, rotary dial tuning in 5 selectable tuning steps, a back-lit 6 digit LCD screen with bar-graph PO/S-meter, and a range of scanning features including busy channel, band, selective memory scanning and priority monitoring. VOX (Voice Operated Tx) circuitry allows hands free operation with the optional YH-2 headset. The FT-411E is supplied with an ultra long-life 7.2V 1000mAh Nicad battery pack, carry case, belt clip, 'rubber duckie' antenna and approved AC charger.
Cat D-3350

2 YEAR WARRANTY

*** SPARE BATTERY OFFER**

Specifications:

Frequency Coverage:	144-148MHz
Channel Steps:	5, 10, 12.5, 20 & 25kHz
Supply Voltage:	5.5-15V DC
Output Power:	2.5W @ 7.2V
Current Consumption-	
Stand-by (with 1 sec. save):	7mA
Receive:	150mA
IF Frequencies:	21.4MHz. 455kHz
Sensitivity (12dB SINAD):	Better than 0.158uV

***BONUS CA-2 DESK CHANGING STAND**
SAVE $39.95

$449

Ultra Compact

FT-23R 2m HANDHELD

2 YEAR WARRANTY

The FT-23R is an ultra-compact (just 55 x 139 x 32mm) microprocessor controlled handheld transceiver that offers extremely rugged construction and exceptional ease of use. It covers 144-148MHz and features 10 memories, 6 digit LCD with PO/S-meter, band/memory/priority scanning, 1MHz up/down stepping, repeater reverse operation, selectable tuning/scanning steps, diecast transceiver casing, FNB-10 600mAh NiCad Battery pack giving 2.5 watts output and rubber gasket seals around all external controls and connectors. It comes with a mini 'rubber duckie' antenna, carry case, belt clip, and approved AC charger.
Cat D-3490

*** BONUS FBA-17 DRY CELL CASE,**
SAVE $19.95

$369

*** SPARE BATTERY OFFER**

Specifications:

Frequency Coverage:	144-148MHz
Channel Steps:	5, 10kHz, 1MHz
Supply Voltage:	6-15V DC
Current Consumption-	
Stand-by:	19mA
Receive:	150mA
Sensitivity (12dB SINAD):	Better than 0.25uV

2m & 70cm In One!

FT-470 DUAL-BAND HANDHELD

Dual-band performance at its best! The FT-470 is a very easy to use handheld transceiver that offers a high degree of flexibility through the use of a sensible microprocessor control system to provide both 2m and 70cm operation in one compact unit. Dual independent IF circuits allow several functions to be performed simultaneously, including dual-band reception, and full cross-band operation. The FT-470 also has 21 tuneable memories and 2 VFOs per band, plus inbuilt C.T.C.S.S. (tone squelch) with a paging facility and a wide variety of scanning functions. A back-lit LCD screen shows a 5.5 digit frequency display on both bands simultaneously and bargraph PO/S-meter lets you know exactly what you're doing. A programmable 'power-saver' system helps maximise battery life, allowing squelched receive current of as low as 7mA. The FT-470 comes with an ultra-high capacity 7.2V 1000mAh NiCad battery pack, carry case, belt-clip, dual band antenna and approved AC charger.
Cat D-3360

*** BONUS**
BATTERY OFFER

Purchase any of these Yaesu handhelds before Christmas, and you can purchase a spare FNB-14 1000mAh NiCad battery pack (D-3351) for just $69. Save $30!
This offer supercedes all previous offers.

Specifications:

Freqency Coverage:	144-148MHz, 430-450MHz
Output Power:	2.3W (both bands, 7.2V)
Supply Voltage:	5.5 to 15V DC
Current Consumption	
Stand-by (with 1 sec. save):	8mA (each band)
Receive:	150mA (each band)
Sensitivity (12dB SINAD):	Better than 0.158uV (both bands)
Size:	55 x 180 x 32mm

2 YEAR WARRANTY $699*

DICK SMITH ELECTRONICS

DS XPRESS PHONE & MAILORDER SERVICE
Outside Sydney (FREE Call) 008 22 6610 Sydney And Enquiries - 888 2105
FAX: (02) 805 1986 or write to DS XPRESS, PO BOX 321 N/RYDE NSW 2113
All Major Credit Cards Accepted. O/Nite Courier Available.

YAESU STOCKS NOT HELD AT ALL STORES. PLEASE CONTACT YOUR LOCAL STORE FOR STOCK AVAILABLITY, OR ORDER BY PHONE 008 22 6610

B1261/M2

VHF SAVINGS

2 YEAR WARRANTY!

FT-212RH MOBILE 2M FM TRANSCEIVER

SUPER VALUE

With 45 watts output over the 144-148MHz range, a rugged diecast chassis for superb RF isolation, extensive use of surface mount components, and a large back-lit LCD with bargraph PO/S-meter, the FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. Features include 5 selectable tuning steps, a total of 21 memories (18 general purpose, one CALL-channel, and 2 sub-band limit memories for band scanning), in-built C.T.C.S.S. encode, as well as a variety of scanning functions. The FT-212RH comes with a mobile mounting bracket, convenient MH-14A8 hand microphone, and DC power lead.

Cat D-3494

SAVE $70 **$499**

FT-4700RH DUALBAND MOBILE FM TRANSCEIVER

Features 50 watts output on 2 metres, and 40 watts output on 70cm (430-450MHz), with Full-duplex crossband operation or dual-band reception modes provided, so you can listen for calls on both bands simultaneously, or work someone on one band while also listening on the other band. The optional YSK-4700 extension cable allows the main body of the transceiver to be installed remotely, while the front panel mounts conveniently on the dashboard. On the front panel the amber back-lit LCD shows both VHF and UHF frequencies and signal strenghths, and all controls are back-lit for clear readability, with a dimmer switch for nightime viewing. A total of 20 memories and 5 selectable tuning steps make frequency selection easy, while the advanced scanning features allow quick detection of signals on either, or both bands. See ARA review Vol. 12 Issue 11 (Feb 1990), or AR review May '89.

Cat D-3300

2 YEAR WARRANTY SAVE $100 **$899**

Cat D-3301 YSK-4700 Extension Cable $49.95

YAESU

FT-736R VHF/UHF BASE-STATION TRANSCEIVER

The FT-736R is Yaesu's best VHF/UHF transceiver! Designed for the serious VHF/UHF operator, this high-performance transceiver provides 25W output (SSB, CW, FM) on the 2 metre and 70cm (430-450MHz) bands, as well as 10W output on the 6m band. It can be easily expanded to also cover the 23cm (1240-1300MHz) band as required. Features include keyboard frequency entry, 115 memories, 2 independent VFOs per band, separate FM channel knob with selectable channel steps, 2 full duplex VFOs for Satellite operation. IF shift and Notch filters, noise blanker, all-mode VOX, SSB speech processor, GaAs Fet front-ends (430, 1200MHz), high stability TCXO reference oscillator and an in-built AC power supply.

Cat D-2925

*** BONUS MH-1 HAND MIC** ***SAVE $49.95***

2 YEAR WARRANTY

- 23cm module (D-2922) $799
- High power antenna duplexer (D-3303) $79.95

$2495 6m, 2m, 70cm *LIMITED STOCKS!*

DICK SMITH ELECTRONICS

NSW • Albury **21 8399** • Bankstown Square **707 4888** • Blacktown **671 7722** • Brookvale **905 0441** • Bondi **387 1444** • Campbelltown **27 2199** • Chatswood Chase **411 1955** • Chullora **642 8922** • Gore Hill **439 5311** • Gosford **25 0235** • Hornsby **477 6633** • Hurstville **580 8622** • Kotara **58 2092** • Liverpool **600 9888** • Maitland **33 7866** • Miranda **525 2722** • Newcastle **61 1896** • North Ryde **878 3855** • Orange **618 400** • Parramatta **689 2188** • Penrith **32 3400** • Railway Square **211 3777** • Sydney City **267 9111** • Tamworth **66 1711** • Wollongong **28 3800** **ACT** • Belconnen **(06) 253 1785** • Fyshwick **80 4944** **VIC** • Ballarat **31 5433** • Bendigo **43 0388** • Box Hill **890 0699** • Coburg **383 4455** • Dandenong **794 9377** • East Brighton **592 2366** • Essendon **379 7444** • Footscray **689 2055** • Frankston **783 9144** • Geelong **232 711** • Melbourne City 399 Elizabeth St **326 6088** & 246 Bourke St **639 0396** • Richmond **428 1614** • Ringwood **879 5338** • Springvale **547 0522** **QLD** • Brisbane City **229 9377** •Buranda **391 6233** • Cairns **311 515** • Chermside **359 6255** • Redbank **288 5599** • Rockhampton **27 9644** • Southport **32 9033** • Toowoomba **38 4300** • Townsville **72 5722** • Underwood **341 0844** • **SA** • Adelaide City **223 4122** • Beverley **347 1900** • Elizabeth **255 6099** • Enfield **260 6088** • St. Marys **277 8977** **WA** • Cannington **451 8666** • Fremantle **335 9733** • Perth City **481 3261** • Midland **250 1460** • Northbridge **328 6944** **TAS** • Hobart **31 0800** **NT** • Stuart Park **81 1977**

STORES ACROSS AUSTRALIA & NEW ZEALAND

B1261/M1

AWARDS

JOHN KELLEHER VK3DP – FEDERAL AWARDS MANAGER

Grid Square Awards Redrafted Rules

1. (a) The Wireless Institute of Australia Grid Square Award (WIA GSA) is awarded for contact with a minimum number of "Maidenhead" 2 degree x 1 degree grid square locators per band as indicated in (b). Grid Squares are designated by a combination of two letters and two numbers.
   (b) The minimum number of squares needed to initially qualify for each individual band award are as follows:
   All HF bands, including WARC bands — 100

50MHz	—	50
144MHz	—	30
432MHz	—	25
1296MHz	—	10
13cm	—	5
all bands above	—	5

2. Only contacts made on or after **1 January 1990** are creditable for this award.
3. (a) Individual band awards are endorsable in the following increments:

— All HF bands	25
— 50MHz	10
— 144MHz + all bands above	5

   (b) Separate bands are considered as separate awards.
4. (a) No crossband contacts permitted.
   (b) No contacts through *active* repeater or satellite devices or any other relay method permitted.
   (c) Contacts with aeronautical or maritime mobile stations do not count.
5. Stations who operate portable or mobile from a different locator than their "home" locator may claim the locator they are *operating portable from,* by either of two methods:
   1. work a station located in their "home" locator;
   2. work at least five different stations outside the portable locator;
   3. on bands 1.2GHz and above, work at least one station outside the portable locator.
6. (a) All contacts for all of the individual band awards must be made from a location or locations within the same grid square, or locations in different grid squares no more than 50 kilometres apart. This will be called the "HOME" locator. Excepting contacts made under the provisions of Rule 5.
   (b) A specified amount of contacts for the basic award needs to be made with stations located in Australia or its territories (ie any prefix VK0 to VK9) as per the table below.

All HF bands	25
50MHz	10
All other bands	1

7. Endorsements will be available on request, ie however you want it endorsed is how it will be done.
8. (a) QSL cards are not required; a certified log extract should be provided with the following information:
   — Date, time, callsign, mode, frequency, grid locator and signal report sent by the station concerned, and grid you are operating from if portable.
   This list should be certified by an official of a society affiliated with the WIA, or by two licensed amateurs, reading as follows: "I/we certify that the enclosed list corresponds with the information contained in the said logbook."
   (b) For those who would have difficulty in getting a certified list, photocopies of your logbook signed by the applicant certifying all the information contained within to be true and accurate can be certified by the Awards Manager.
   Note: All entries must be legible.
9. The cost for each award is Australian $5.00 for amateurs in Australia, or $US5.00 or eight IRCs for those outside Australia. Requests for endorsements should be accompanied by an SASE or one IRC and SAE.
10. This award is very much dependent upon the honesty of the operator. As such, any fraudulent applications will result in the disqualification of the applicant from all future WIA GSAs.
11. Any decisions regarding interpretation of the rules here printed made by the Federal Awards Manager are final and binding.
12. There will also be a standing list of the top five scorers on each band, so people can see just what is possible and what is being achieved. This may encourage those who think they will never reach their target. It will also give those who like a bit of competition something to aim for.

Worked All States Award Rules

1. The WAS (Worked All States) award is available to all amateurs world-wide who submit proof with written confirmation of having contacted each of the 50 states of the United States of America. The WAS awards program includes 10 different and separately numbered awards as listed below. In addition, **endorsement** stickers are available as listed below.
2. Two-way communications must be established on amateur bands with each state. Specialty awards and endorsements must be two-way (2X) on that band and/or mode. There is no minimum signal report required. Any or all bands may be used for general WAS. The District of Columbia *may* be counted for Maryland.
3. Contacts must all be made from the same location, or from locations no two of which are more than 50 miles apart *which is affirmed by signature of the applicant on the application.* Club station applicants, please include clearly the club name and callsign of the club station (or trustee).
4. Contacts may be made over any period of years. Contacts must be confirmed in writing, preferably in the form of QSL cards. Written confirmations must be submitted (no photocopies). Confirmations must show your call and indicate that two-way communications was established. Applications for **specialty** awards or **endorsements** must submit confirmations that clearly confirm two-way contact on the specialty mode/band. Contacts made with Alaska must be dated 3 January 1959 or later and, with Hawaii, dated 21 August 1959 or after.
5. Specialty awards (numbered separately) are available for OSCAR satellite, SSTV, RTTY, 432MHz, 220MHz, 144MHz, 50MHz and 160 metres.

Endorsement stickers for the basic mixed mode/band award and any of the *specialty* awards are available for SSB, CW, Novice, QRP, Packet, EME and any Single Band. The novice endorsement is available for the applicant who has worked all states as a novice licensee. QRP is defined as 10 watts input (or five watts output) *of the applicant only* and *is affirmed by signature of the applicant on the application.*

6. Contacts made through "repeater" devices or any other power relay method cannot be used for WAS confirmation. A separate WAS is available for OSCAR contacts. All stations contacted must be "land stations". Contact with ships, anchored or otherwise, and aircraft, cannot be counted.
7. A W/VE applicant must be an ARRL member to participate in the WAS program. DX stations are exempt from this requirement.

HQ reserves the right to spot call for inspection of cards (at ARRL expense) of applications verified by an HF Awards Manager. The purpose of this is not to call into question the integrity of any individual, but rather to ensure the *overall* integrity of any individual, but rather to ensure the *overall* integrity of the program. More difficult attained specialty awards (such as 220MHz WAS for example) are more likely to be so called. Failure of the applicant to respond to such spot check will result in non-issuance of the WAS certificate.

9. **Disqualification.** False statements on this application or submission of forged or altered cards may result in disqualification. ARRL does not attempt to determine who has altered a submitted card; therefore do not submit any marked-over cards. The decision of the ARRL Awards Committee in such cases is final.
10. **Application Procedure** (Please follow carefully)
(a) confirmations (QSLs) and application form (MCS-217) may be submitted to an approved ARRL Special Service Club HF Awards Manager. ARRL Special Service Clubs appoint HF Awards Managers whose names are on file at HQ. If you do not know of an HF Awards Manager in your local area, call a club officer to see if one has been appointed. If you can have your application so verified locally, you need not submit your cards to HQ via the mails. Otherwise, send your application and cards to HQ, as indicated on the application form.
(b) Be sure that when cards are presented for verification (either locally or to HQ) sort them alphabetically by state, as listed on the back of the application form, MCS-217.
(c) All QSL cards sent to HQ must be accompanied by sufficient postage for their safe return (postage guidelines attached).

(Note: Australian applicants can obtain an application form from and have their QSLs verified by the WIA Federal Awards Manager). ar

CONTESTS

(INFORMATION PROVIDED BY RELEVANT CONTEST MANAGERS)

Contest Calendar

Jan 1992
To 12 Ross Hull
25-26 VHF-UHF Field Day

March
14-15 John Moyle FD
13-15 JA "59" *DX Magazine* CW

RD Contest '91

Late logs were received from the following
VK7HK
VK6GGA
VK6GGD
VK5APD
VK2EY
VK5UE
VK3HZ

These logs, if added to the results, would not have changed the winner, which was VK3 for the second year in succession.

Correction — '91 Novice Contest

Section B Novice Winner — VK4VXX
Score — 150 points
Incorrectly placed in Phone Section

Japan International DX Contest

Sponsored by JA "59" DX Magazine
Box 59, Kamata, Tokyo, 144, Japan

CW Section

Date: 13-15 March 1992
Time: 2300 UTC to 2300 UTC
Bands: Classical DX Bands (No WARC): 80 to 10 metres

Whilst the period of the contest is 48 hours, the **maximum a single** operator can participate is a **total 30 hours only.**

Class of Participation:

1. Single operator multiband
2. Single operator 80m
3. Single operator 40m
4. Single operator 20m
5. Single operator 15m
6. Single operator 10m
7. Multiband — multioperator

To call: "CQ JA DX"

Overseas operators will give cypher numbers from 001 to 999. Overseas participants to contact Japanese stations only.

Scoring: 80m: 2pt. 40 and 15m: 1 pt. 20m: 1pt. 10m: 2pt

Total score: Total points multiplied by the number of prefectures worked

Logs to be submitted: CW section: 30 April

Address: Logs and summary sheets to: JA "59" DX Magazine, Box 59, Kamata, Tokyo 144, Japan.

Results of the 15th West Australian Annual 80m CW and SSB Contests for 1991

Congratulations to VK6PGG and VK6BN on winning the CW and SSB sections respectively.

Results for the 3.5MHz CW Contest:

		points
VK6PGG	—	3668
VK6BN	—	2420
VK6AFW	—	2260
VK6ABL	—	2052
VK6BSL	—	938
VK6BWI	—	600
VK6BEB	—	480
VK6JQ	—	340
VK6WZ	—	270

Results for the 3.5MHz SSB Contest:

		points
VK6BN	—	5474
VK6BGF	—	4704
VK6DE	—	4288
VK6ELL	—	4004
VK6AMB	—	3900
VK6IU	—	3562
VK6WZ	—	1560

All participants enjoyed the contests with reasonable band conditions on both nights. One particular comment is the lack of novice operators in spite of slow CW calls by operators. Also the shortage of country stations and "where are all the logs" — the sum total being the above.

C WATERMAN VK6NK

Ross Hull Contest 1991-1992

A couple of minor rule changes have been made in response to comments received, but otherwise the rules are much as proposed in May and October *AR*.

The contest has been shortened slightly. Contest days will now begin at 1800 UTC and so will coincide with local days. The dates are from 1800 UTC on 20 December to 1800 UTC on 12 January. In our time zone, this means three weeks and four full weekends beginning early in the morning on Saturday, 21 December, and ending when you go to bed on the night of Sunday, 12 January.

Scoring will be based on the best seven days for each band. Your best seven days on six metres need not be the same days picked for two metres, and so on. Last year's logs were analysed to improve the balance between the various bands, and the band multipliers have been changed as shown below.

The satellite section has been dropped. There was only one entry last year and there seems to be little point in continuing it.

Most of the big point scores come from DX contacts, so it is in everyone's interest to avoid cluttering the calling frequencies with local QRM. This was a major problem last year and resulted in a number of DX contacts being missed — exactly the opposite of what the contest aims to achieve!

This year a frequency of .150 on each band is suggested for routine contest working. If you have two VFOs, it is easy to keep tabs on "point one", but to shift to .150 for your routine number-swapping. On six metres, avoid 50.110 like the plague. It may be necessary to move just below 50.150 for ZL contacts, but otherwise please use 50.150 and above. For local contacts 52MHz would be even better.

If you are interested in portable operation, make a special note of the last weekend of the contest. The VHF-UHF Field Day will take place on 11-12 January and you can count any contacts for the Ross Hull Contest as well. Please give consideration to heading for the hills over that weekend.

I hope this year's contest will be a roaring success, and I wish all entrants the best of luck.

Ross Hull Contest 1991-1992: Rules

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in the VHF-UHF field, especially the discovery and investigation of VHF tropospheric propagation.

The name of each year's contest winner is engraved on the trophy, and s/he will receive an attractive wall plaque and certificate. The contest is not confined to WIA members.

Duration

1800 UTC Friday, 20 December 1991 to 1800 UTC Sunday, 12 January 1992. Scoring will be based on the **best seven contest days** (ie 1800-1800 UTC) on each band, as nominated by the entrant.

Sections

A: Multiband. B: Single band.

All entrants will be scored for both Section A and Section B.

General Rules

All bands above 30MHz may be used. Single operator only. One contact per station per band per contest day. Crossband contacts, repeater contacts and satellite contacts are not permitted. Entrants may operate from any location.

Contest Exchange

RS (or RST) numbers plus a two-digit serial number. Serial numbers should begin again at 01 at the start of each contest day. Maidenhead locator numbers may be exchanged as an aid to distance calculation.

Scoring

One point per 100km or part thereof (ie up to 99km: 1 point; 100-199km: 2 points etc). **On six metres only,** as above, but up to a maximum of **10 (ten) points** per contact.

Band Multipliers

6m	2m	70cm	23cm	2.3GHz	Higher
x 1	x 4	x 7	x 10	x 13	x 16

Logs

Logs should cover the full contest period. Distance estimates need only be made for the seven chosen days on each band. Separate logs for each band would help, but are not essential.

Logs must contain the following for each contact:

— UTC date and time
— Station location (if operating portable)
— Callsign of station worked, band and mode
— Location or Maidenhead locator of station worked
— Reports and serial numbers sent and received
— Estimated distance worked and points claimed

Cover Sheet

Logs must be supplied with a cover sheet containing:

— Operator's callsign, name and address
— Station location (if different from the postal address)
— A scoring table set out as the example below
— A signed declaration that the station has been operated in accordance with the rules and spirit of the contest

Deadline

Logs must be received by Monday, 17 February 1992. Early logs would be appreciated. Post logs to WIA Ross Hull Contest Manager, PO Box 300, Caulfield South, Vic 3162.

Disqualification

The normal rules apply. Entrants may be disqualified if there is evidence that claimed contacts were not actually made, or if logs are incomplete or illegible.

Awards

The overall winner will be the top scorer in Section A. Awards will also be made to the top scorers on each of the following bands: 6m; 2m; 70cm; 23cm; 13cm; microwaves (bands above 3GHz).

Note on Calculating Distances

Absolute accuracy is not needed. All you need to know is whether the distance is above or below the nearest multiple of 100km. "Ruler and map" estimates will often be quite good enough for this. Better estimates can be made from **six-digit** Maidenhead locators, using simple computer programs published in December 1990 and January 1991. The contest manager reserves the right to correct distances on the basis of computer calculation, and his decision will be accepted as final.

Sample Scoring Table

Ross Hull Contest 1991-1992: Log of VK0XXX

6 metres		2 metres		70cm		etc
Date	Score	Date	Score	Date	Score	
29 Dec	xxx	27 Dec	xxx	29 Dec	xxx	
7 Jan	xxx	31 Dec	xxx	6 Jan	xxx	
10 Jan	xxx	6 Jan	xxx	9 Jan	xxx	
etc						
Total	xxx		xxx		xxx	
Mult	x 1		x 4		x 7	
Total	xxx	+	xxx	+	xxx = xxxx	

VHF-UHF Field Day 1992

In the past, this Field Day has been run over the Australia Day weekend, which is the last weekend of the school holidays. Last year it was suggested this could clash with family commitments and an earlier date would be better. There is also a good chance of more amateurs being on holiday in mid-January than there would be at the end of the month.

So the Field Day has been moved to **11-12 January 1992.** This coincides with the last weekend of the Ross Hull Contest, and any Field Day contacts can also be counted for the Ross Hull Contest. This weekend will also be an ideal opportunity to add to your collection of locators for the new Grid Square Award. So there are three very good reasons to keep that weekend free, and go portable if you can!

Scoring for the Field Day will continue to be based on locator squares, but the band multipliers have been brought into line with those used for the Ross Hull Contest.

Duration

0200 UTC Saturday, 25 January to 0200 UTC Sunday, 26 January.

Sections

A: Portable station — single operator
B: Portable station — multiple operator
C: Home station

General Rules

All modes and bands above 30MHz may be used. Repeater and crossband contacts are not allowed. Entrants may not operate from more than one locator square. You may work stations within your own locator square.

Contest Exchange

A serial number beginning at 001, plus Maidenhead locator. RS or RST reports may be exchanged but are not required in the log.

Repeat Contacts

Stations may be worked on each band once every four hours.

Scoring

Home stations one point per contact. Portable stations two points per contact. Three points if both stations are portable.

6m	2m	70cm	23cm	2.3GHz	Higher
x 1	x 4	x 7	x 10	x 13	x 16

For each band, multiply the points score by the number of locator squares worked on that band, then by the appropriate band multiplier. For example, on two metres, 20 contacts x 4 squares x 4 = 320 points. See the sample scoring table below.

Awards

The overall winner will be the highest all-band scorer in Section A. Awards will also be made to the highest scorer on each band in Section A, and the highest scorers in Sections B and C.

Logs

For each contact, UTC time, band, station worked, serial numbers and locator numbers exchanged, points claimed. The front sheet

should contain the name, address and callsign of the operator, station location, section entered, and a scoring table as follows:

Band	Points	Squares	Total (points x squares)
6m	xxxx	x xxxx	= xxxx
2m	xxxx	x xxxx	= xxxx
Overall Total			xxxx

Entries

Post logs to the Manager, VHF-UHF Field Day, PO Box 300, Caulfield South, Vic 3162. Logs must be received by Monday, 24 February 1992. Early logs would be appreciated.

John Martin VK3ZJC
Ross Hull and VHF/UHF Field Day Contest Manager

VHF/UHF – AN EXPANDING WORLD

Eric Jamieson VK5LP – PO Box 169 Meningie 5264

All times are UTC

The Beacons

Last month I published the list which normally appears in December, so for now you will need to be content with any alterations or additions.

A letter from John Miller ZL3AAU brings us up to date on the state of beacons in New Zealand. They currently stand at:

50.043	ZL3MHF	RE66	Aylesbury	50w	A1A
50.0525	ZL3MHB	RE57	Greymouth	30W	A1A
51.020	ZL1UHF	RF73	Nihotupu	25W	F1
51.030	ZL2MHB	RF80	Napier	10W	F2
52.510	ZL2MHF	RE78	Mt Climie	4W	F1
50.0475	ZL2???	RF70	New Plymouth was approved on 11/11/90, but is not operational.		

ZL3MHF runs 50 watts switched alternatively to two bi-directional beams NE/SW and NW/SE. The identifier is ZL3MHF twice, then carrier followed by either NW or NE twice. The beacon has been operational on 50MHz for about 12 months.

P29BPL has been noted on 50.0195. The five JA beacons have been heard this month, and a frequency check made. They are JA2IGY on 50.009, JA6YBR 50.016, JA7ZMA 50.026, JA7YYL 50.047 and JG1ZGW 50.049MHz.

VK7RSB on 50.057 is shown in the FTAC list, but I have no details. For more information on the proposal for 50MHz beacons in Australia, I refer you to the FTAC Notes in *AR* this month. Ron VK4BRG is testing a beacon on an initial frequency of 50.0775; if successful, consideration will be given to the use of a frequency following FTAC guidelines and whether the beacon will be moved to another location.

A new Adelaide beacon can be found on 432.450MHz signing VK5ACE at present. It is radiating a good signal into Meningie. In the near future it will be shifted to Mount Lofty and housed with another new beacon on 1296.450MHz. More details later.

Six Metres

This band can still bring forth surprises. Peter VK8ZLX had exciting times. Some of his notable contacts included: 22/9 BV2, 23/9 V85; 28/9 PA3; 11/10 JD1; 16/10 OZ1, DL8, SM7, OH2, GW0, PA3, G4, OE and LA between 0740 and 1001. On 17/10 between 0831 and 1026 he worked ON4, DK, OZ1, PA3, GW0, LA9, G6 and SM. 18/10 between 0641 and 0747 DL7, IV3, ON1, PE1, YU3 and DK. 19/10 at 0249 KL7, and from 0551 OZ, OH3, SM7, OZ5, OE, DL, PA, FC, IK, YU3, YU2 and GJ4. All these prefixes for a total of 217 European contacts!

More Europeans

First reported European opening appears to have been on 28/9 when VK3OT heard and called ON4ANT. VK8ZLX worked PA3UI at 0749, VK6PA into southern UK around 0900, and VK4FP was reported as having worked 9H1JN, 9H1AW and DK3UG. (Last year the first opening was on 19/10/90). Other same day's news included four VK6s having worked JT1CO in Mongolia. On 11/10 I heard that VK4FP had worked SV and 9H1, and VK8RH worked Italy. On 13/10 VK4FP to YU, G and F. During mid-October, for several days, JA, KG6 and VS6 had also been working to Europe, including Gibraltar on 14/10. On the morning of 15/10 JAs were working Brazil on what appeared to be the long path which would have to be over Australia. VK4s from Brisbane to Townsville were there on Es.

Ultimately, some operators in lower climes were treated to European contacts, but not until 18/10. JAs had been into VK5 all day, and late in the afternoon strong backscatter CW signals were noted from VK2QF, VK2BBR, VK2EDB, VK2FLR, VK3OT, VK3LK, VK3AMZ, VK3AMK, VK3AKK and VK5NC, plus many strong video signals peaking around 330 degrees. At 0643 VK8ZLX was working DL so there were possibilities for the southern regions. The JAs were already working Europe.

On 10 metres at 0906 OZ1BVW said he was hearing signals from VK and JA on six metres. Then a report came in that VK4HT had worked YU3. Soon after, the band from 50.080 to 50.130 erupted with VK2s and VK3s calling Europe and working stations split frequency on CW. Prefixes worked included GJ4, DL7, DL2, IV3, PA0, OZ1, ON2, PA3 PA2, PA4, DK8, ON4, ON1, DM8, DK8, GM0 and YU3, the latter being a rare catch. For good measure, some worked NI6E in Hawaii! Between 0730 and 0841 I noted strong video on 49.224 and was later told this could have been from France. Not knowing this, I did not call — perhaps I had the only opening to France — no French stations were heard or worked by anyone else, so I will never know if I missed an opportunity!

Ray VK3LK sent a letter to say he worked 9xOZ, 6xPA, 3xPA, 3xON, 3xSM, 2xDL and GJ4, working 24 and heard YU and LA. Ray commented that the opening peaked around the Heywood/Hamilton area, with less being heard and worked to the east and west. VK3OT worked 21 stations, and I have no details of the tallies from the Melbourne stations. Trevor VK5NC in Mount Gambier worked three stations, so by the time signals got to him they were tapering off. It is doubtful whether any were heard in Adelaide; certainly Roger VK5NY missed out and there was not so much as a peep to be heard here at Meningie. It was most frustrating to hear the others working so many areas and VK5 missing out.

As always, Queensland receives its fair share of contacts. In the Brisbane area, John VK4ZJB reports various stations were involved in contacts on 2/10 to W5, W6 and ZK1CG; 4/10 K5, AA6TT/0; 6/10 WA4 and WB4, V73AT; a prize catch on 8/10 between 0400 and 0500 was JT1CO in Mongolia, with signals varying from 5x9 to 5x1. At that time there were wall-to-wall JAs; 10/10 at 0320 JT1CO again, then from 0900 to 0930 9H1JN and 9H1AW with signals to 5x9 — Lance VK4ZAZ worked them whilst he operated mobile! 17/10: OZ1LO in FK30 at 529 to VK4ZJB for four minutes only.

Other good contacts on 14/10 commenced with Geoff GJ4ICD to Mike VK2FLR. Mike said it was an astonishing five-minute opening into Sydney with signals to 599, before moving to VK4JH and VK4RO. This was apparently the first European contact to Sydney and may well constitute a new record from the UK to VK. Mike wrote:

"The surprise for me was that, while we had strong 48.25 and 49.75 TV at the time, there was no in-band frame buzz, usually a bad sign. Geoff's signal shot up out of the noise on 50.110, but lasted only a few minutes. No other Europeans were heard here, but we did hear the VK4s on Es working in that direction. On 18/10 I could hear VK2QF near Mudgee working into Germany, Denmark and possibly Norway, but nothing was heard in Sydney. On the night of 16/10 I spoke to G3HBR on 10 metres, who reported getting a recognisable picture from DDQO in Toowoomba earlier in the evening. Apparently the 46.172 video was the strongest he had ever heard it.

Reports were coming in of the north Queensland operators working W5 and W6, also to Malta and Greece. Hawaii was working into the eastern states, plus VK5 and VK8. VK6PA had a wide coverage of contacts to Europe. Joe VK4JH is often a strong Es signal into VK5. It

was noted on 17/10 that he had worked BV, BY, VS6, JA, FK, 3D2 for starters!

On 19/10 CN8FT in Morocco was worked by VK4HT, VK4BUN, VK8RH and others in each of those states. That was a good catch. KL7NO was into VK5 at 0255 on 19/10. More thrills came on 27/10 when the Brisbane gang from 0740 had ON1BV on CW, SV1SV, SV1DH, SV1AB, SV1UN, SV1EN and SV0BY, all on SSB with signals to 5x5.

On 28/10 VK4RO said W5 came into Adelaide during the morning for a brief CW stint. Large solar flares produced an aurora on 29/10 from 0500. JAs were 579 at 0550 with the characteristic garbled auroral sound. They came from JA1, 2, 3, 7, 8, 9 and 0, and remained available on CW and SSB until 0940 when they quickly disappeared. All five JA beacons were audible during this opening, peaking to S6. Some contacts were made from VK5 to VK2 and VK3 using the auroral path.

Sarina Report

Ron VK4BRG at Sarina continues to pull in the DX, slowly but constantly adding to his very respectable countries score. The JAs and KH6s continue to dominate the openings, so omitting them the following is a selection of his contacts.

26/8: 0028 to 0218 17 W6 and W5, with most from Texas; 0128 K1HTV in Maryland, assisted by Es; 30/8: 2349 K5CM; 3/9: 0005 to 0203 fourteen W5 in Texas and Oklahoma; 5/9: 0909 BZ4SAA — Ron commented that he had met the operator, Kang, on his visit to China, so was very pleased to make a 6m contact with him; 10/9: 0022 WQ5S; 12/9: 0247 WQ5S and K5CM, 0831 KH4AF Johnson Island and 1008 JD1BFI Ogasawara; 19/10: 0822 to 0934 GJ4ICD, GW4EAI, six PA, 12 G; 21/10: 0121 to 0155 three W7 in Oregon, one W6, one W7 in Arizona; 22/10: 0038 NI6E, 0042 KH6IAA, 0043 to 0216 14 W6, W7 Arizona and W7 New Mexico; 25/10: 0059 K7GGJ, 0112 WB7PEK, both in Oregon; 26/10: 2244 to 2321 six W6. (A late report indicates Ron worked to W1 again on 29/10, and that's a long way ... 5LP).

Ron added there has been a high degree of good propagation in the northern hemisphere, with the east-west path from W working into the north Pacific. He had heard JAs working South America, but little of this filtered down to the south-west Pacific, though ZL had had many more openings to W than he had during the latter part of October.

The Hargraves Report

Nev VK2QF sends a brief report which indicates he heard JT1CO as a beacon on 10/10 at 0345 but could not break through. On 18/10 there were many strong video indicators below 50MHz which led to a European opening between 0831 and 0958 when he worked DL8HCZ, SM7AED, OZ1LO, OZ8RW, SM7FJE, SM7SCJ, SM7BAE, OZ2LD, DL8HCZ (SSB), PA2VST, PA0LSB and PA3BFM. These were new countries and gave Nev WAC.

Nauru on Six Metres

Stephen Pall VK2PS, the DX editor, forwarded news from Jack T30JH that Brian C21BR is to activate Nauru on six metres for two years from 3 November 1991, using equipment lent by Peter VK4APG and a beacon constructed by Nev VK4ZNC and operating on 50.110. The equipment will run 100 watts of SSB. Nauru should be within multi-hop Es distance of Australia. Liaison will be via 28885kHz.

Using 28.885MHz

By the way, I would be a lot happier about 6m F2 contacts in general if they were fully completed on 50MHz rather than on 28.885. I recently heard a VK on 28.885 say to a European: *"You heard **me** calling CQ — Yes. — I heard **you** calling CQ, therefore it is a contact!"* Really!

Only this last week I heard a JA receive his 6m signal report via 10 metres. In the past there have been other instances. Let us all play the game fairly. In the future I will be increasing my surveillance of 28.885, and any such breaches of operating conduct will be written in my notebook for future reference and a query referred to the operator, in the event the contact is claimed for the Standings List. So beware!

Robert Greenwood VK4NG

My snipped in October *AR* regarding Bob VK4NG and early JA contacts has prompted two readers, Lance VK4ZAC and Noel VK4ZAR, to write filling in the information regarding the equipment used by Bob. Each agreed that his receiver consisted of a 6AK5/6J6 converter feeding into an AR7 receiver as the tunable IF. The transmitter used a 6SG7 crystal oscillator driving a 6V6 buffer to an 807 running 60 watts AM, modulated by a pair of zero bias 807s. Lance said he had a four-element Yagi at 35 feet and Noel said he finally settled for what he called his "Comical Quad". Noel enclosed a copy of a card from VK4NG for a contact on 9/11/57. Thank you for your interest gentlemen.

Lance VK4ZAZ added that in 1958 he, VK4ZAR and VK4NG worked literally thousands of JAs and scores of Ws. Lance said he was probably the first Z call to work overseas and had a couple of JAs challenge the validity of his call as they could not see how we had gone through the alphabet so quickly! He said *"try explaining that over a considerable (at the time) language barrier."*

Incidentally, Noel commented that he had a similar set-up to VK4NG, but used a BC312 receiver. In 1958/59 Lance varied his similar equipment to include speech clipping in the modulator and two 807s in the PA. His tunable IF was an AR8. These references bring back feelings of nostalgia to me, as my first 6m rig in 1960 was a pair of 807s modulated by a pair of zero bias 809s with high level clipping and filtering. One hundred watts of RF modulated by 100 watts of audio, with the appropriate clipping and filtering to keep the signal from spreading, did indeed result in a very potent signal. For receiving I used a Kingsley KF/C610 ferrotuned tunable converter (with considerable drift and still in my possession) and an AR7 as a 10.7MHz IF. Those were the days!

News from England

Ted Collins G4UPS sends his monthly notes to Radcom, QST and up to a dozen other countries, so is interested in exchanging notes with me. His brief letter included a note which read *"I have just received a beautiful certificate for the VK3 award working VK3OT for a VK3 distance record."* In these depressing days, isn't it nice to read that someone has received something that brings them joy. Congratulations!

Ted also included many pages of 6m information covering August and September, plus a world beacon list and a list of 25 callsigns with the prefixes and grid squares of YT and YU stations which had been worked to 2/9/91. Also, keyers are often heard from V51E on 50.102 and TR8CA on 50.092. It is interesting to note that his list of regularly heard beacons includes VS6SIX on 50.0745.

The following information is condensed from that supplied by Ted G4UPS. The 4N3SIX beacon in Slovenia is now on 50.016. 9Q5EE has gone from Zaire, leaving only Gus 9Q5TE who runs two watts to a three-element Yagi. The French beacon FX4SIX is now on 50.314MHz. GM4DGT will activate TA4 (Turkey) in December 1991. Doug ZP6XDW has changed his callsign to ZP6CW. The 6m rig and antenna used by 5H1YK has been handed on to 5H3RA who will use it. Kevin ZC4KS from Cyprus is now on the band.

Dave 9L1US went QRT in October and the beacon on 50.091 will change to the club callsign 9L1SL. Dave may return to Africa and operate from Botswana A22. Malawi is likely to have two active stations, 7Q7CM and 7Q7LA. PY5CC has been trying some special callsigns lately, including PX5A, PU5A and ZX9A. Jo W3JO will activate Jamaica as 6Y5/W3JO until 16/12/91. Gerard 5V7JG (also F2JD AND CE0ZZZ) runs 25 watts to a five-element and expects to be in Togo until February 1992. Two possible stations in Lebanon are Roger LA4GHA/OD5 and Samir OD5SK.

Richard G4CVI, Paul G4CCZ, Mike G3SED and Mike G3JVL will operate from Guyana and Brazil for two months commencing April 1992. They will use their G callsign/8R1 for Guyana. Permits to operate from OK are to be issued soon.

Prefixes heard or worked from England during September included CX4, PT7, LU8, LU7, CX8, CX9, FC1, 7Q7 CT1, 4N3, YU3, I7, OE3, IK3, SV1, I2, IK4, SM7, DJ2, V51, A22,

IN8, 9Q5, VK6, VK8, Z23, DJ0, EA3, ZS6, ZP6, TU2, 9L1, ZS9, CT0, OZ7, OZ4, YT2, TU4, OH1, OE6, DL7, I1N, 9J2, TR8, 5V7, ZS4, 9H1, 9H5, OE6, SM1, SK6, LA9 representing 33 countries!

Six-Metre Calling Frequency

Bill VK5ACY has expressed concern that there does not seem to be a recognised 6m calling frequency for Es contacts, particularly during the peak summer period. He mentions that last year there was strong opposition to working Es anywhere near 50.110 due to possible interference to long-haul DX.

Bill suggests a calling frequency of 50.200 as being far enough from the low end. That's true, but there is a problem that 50.200 is the upper limit of the 50MHz segment for the eastern states, so the sidebands from a signal could be outside that limit. As there is presently only limited operation between 50.150 and 50.200, why not use that portion for domestic contacts with a calling frequency of 50.160. This would allow an area for contacts to be moved higher in frequency after making initial contact on the call frequency. Currently I tune to 50.160 and above when checking the band for signals, so it would mean no change to my operating habits. By the time you read this it will be December and the Es "season" so why not try it this year and see what happens. The Ross Hull Contest could be conducted from 50.150 to 50.200 without worrying anyone seeking DX from other countries. Then, of course, do we want to abandon 52MHz? Your thoughts please.

Two Metres and Above

There has been a reasonable degree of activity, mainly on 144 and 432MHz. Mark VK5EME said regular contacts have been with VK5MC, VK5KAF, VK5ACY and occasional VK3s on 144, and with VK5ZVA on 432. Bill VK5ACY on Kangaroo Island recently erected a 12-element DL6WU 2m Yagi at 19 metres high and with 100 watts has worked many VK3s plus VK6WG at Albany and VK6AS at Esperance.

Mark said Channel 5A in western Victoria is a good indicator for 2m band conditions providing the picture is received in colour and with a very strong sound carrier on 143.750MHz.

Conditions on 432 to Horsham in Victoria have been poor in the evenings and good in the mornings. The Ballarat beacon on 432.535 has been heard around 1200 to 1400 UTC, with signals to S8 but no stations worked.

Phil VK5AKK at Hallett Cove has been testing with Wally VK6WG at Albany on all bands from two metres to 1296MHz to establish the changes due to propagation variations. Ducting has been found to be very poor to Albany from north of Adelaide in the evenings and much improved after sunrise, which is at variance with conditions at Hallett Cove.

Mark VK5EME expects to operate portable from the Adelaide Hills during the summer months, probably late December through early January, operating from 2200 in the mornings and 0830 in the evenings. He will run 100 watts on 144, 10 watts on 70cm, 10 watts on 23cm and 0.5 watts on 13cm. He is interested in working VK3 on 23cm and 13cm from his portable site. Mark also listens most mornings from 1930 to 2030 on 144.1 and 432.1, mainly in the VK3 direction, looking for random contacts. David VK3AUU was a reliable morning signal about two years ago. VK5AKK is also considering portable operation this summer.

EME Information

Chris VK5MC advised of two contest weekends, 26-27 October and 23-24 November with bands from six metres to 10GHz in use. During the October tests nothing was heard at Meningie, but VK5EME heard W5UN on 27/10 and W5UN and KB8RQ on 28/10. VK5AKM heard CW on 432.007.

Closure

Space has run out so I must close. With Es to the fore as you read this, operators can enter the Ross Hull Memorial Contest and should be able to renew former friendships. Don't overlook Es 2m contacts when the skip shortens on six metres.

Best wishes to all readers for Christmas and new year. This month I start my 23rd year of writing this column. My sincere thanks to all those who have supported me with information over the years.

Closing with two thoughts for the month: "Don't knock the weather. If it didn't change once in a while, nine out of 10 people couldn't start a conversation," and "You may think seat belts are uncomfortable — but have you ever tried a stretcher?". 73 from The Voice by The Lake. **ar**

FTAC NOTES

JOHN MARTIN VK3ZJC FTAC CHAIRMAN

Yet More Records

The first national long-path record for 50MHz, set by VK3OT and 9Q5EE, has been broken. A long-path contact between VK6JQ in Broome, and TL8MB in the Central African Republic, has bee verified, the distance being 28,397km.

The new VK4 long-path record, set by VK4ZAZ and 6W1QC, has now been superseded. On the same day he worked Lance VK4ZAZ, 6W1QC also worked Joan VK4BJE and Bill VK4KHZ. The distance is 21,754km. Congratulations especially to Joan for becoming the first YL to hold a VHF/UHF record.

A new Digital Modes record has been set by Robert Black VK2BBR, who worked Yutaka Katoh JH1WHS on 28 April 1991, a distance of 7320km. Yutaka must be very active on RTTY as this is his third consecutive new Digital Modes record. Congratulations to him and to Robert, who also set a new VK2 6m record recently with the very active 6W1QC.

This month there is also a new national EME record for the 2m band. Arie Groen VK3AMZ has broken the record set 25 years ago by working VE1BVL on 22/6/91, a distance of 17,683km. Congratulations Arie.

Rumours

The new long-path records on six metres have caused some controversy, and I believe there have been some rumours about the validity of several recent 6m records. A few points to set the record straight:

1. The verification requirements for records are quite stringent, including evidence required to determine whether or not the contact was made by long path. No record is granted unless there is absolutely no doubt the contact was made as claimed.
2. Verification of long-path records takes into account conditions, time of day, other stations heard or worked, corroboration from other stations and known characteristics of the path.
3. The short path records still stand. My apologies for omitting them from the last *Call Book* listing and possibly giving offence to the holders of those records. This oversight will be corrected when the list is published again in February *AR*.

50MHz Beacons

Thanks to VK3TAF, VK2JSR, VK4BRG, VK4JHM, VK5LP, VK6HK and WESTAC for comments received on the 50MHz beacon proposal.

Federal Council has approved a proposal to make 50MHz beacon frequencies available immediately in the eastern states. One frequency per call area will be used initially, with the possibility of extra — possibly co-channel — beacons later. VK3SIX is already operating on 50.0535 and VK7RSB is on 50.057. Frequencies for other call areas will be organised as soon as possible.

Beacon frequencies will be co-ordinated nationally to minimise interference. Future allocations within the DX window will be for eastern state beacons only.

Federal Council also formally adopted the following beacon standards:

(a) Beacons should transmit 24 hours per day.

(b) Beacons should identify at least twice per minute.
(c) Identification content should be minimal, either callsign only or callsign plus locator.
(d) The period between identifications must be key down.
(e) Identification should be 850Hz FSK; however, keyed CW (A1A) is also acceptable on frequencies below 52MHz.
(f) Antenna polarisation should be horizontal.
(g) Frequency accuracy and stability should, if possible, be one part in 10^6.
(h) Beacon ERP should be consistent with user power levels on the band in question.
(i) Beacon frequency spacing may be as close as 1kHz.
(j) Frequency sharing may be used on 50MHz if the beacons concerned are in null zones to each others. **ar**

ALARA

Jenny Adams VK3MDR — 70 Kangaroo Ground Rd, Wattle Glen 3096

Goodness!! Where has the year flown? It seems like only last week I took on this job. Season's greetings to all; may you have a peaceful and joyous Christmas.

This month saw the passing of a well-known and loved ALARA member, Joy VK2EBX.

Thank you to Meg VK5AOV for compiling the following with information supplied by Joy's daughter Janet, Doug Tamblyn VK5PDT, Marilyn Syme VK3DMS, Christine Taylor VK5CTY and Neville Wilde VK2OR.

Joy Collis VK2EBX
(formerly VK2VJV and VK2KJC)

Born in London, Joy migrated to Australia in 1950. Here she met her future husband, Dan, married and raised a family of three boys and three girls in various somewhat remote areas of rural Victoria and New South Wales. She taught her children by correspondence until the family eventually moved to the Wellington region in 1970.

It was soon after this that she was introduced to CB radio — an interest which soon led her on to amateur radio, gaining her full licence a few years later.

Joy also held the position of clerical assistant at the Yeoval Central School from 1981, and during those years she began to write poetry, winning the Bronze Swagman Award for bush verse in Winton, Queensland, in 1983. Her verse has also been published in *Amateur Radio* and the *Alara Newsletter*, giving much pleasure to her readers!

Joy was a wonderful ambassador for amateur radio, both privately and as an active member of the Orange Amateur Radio Club, of which she was an Honorary Life Member, and of course for Alara. From November 1987 until last year when she became unable to continue for health reasons, Joy was the Alara publicity officer and *Amateur Radio* correspondent, tasks which she undertook willingly and with flair.

Before her illness prevented her from travelling, Joy and Dan were able to visit DX friends in Canada and England, as well as revisiting her childhood haunts. Such was her charisma that she had made friends all over the world.

Joy had a challenging life — living through war-torn London, the illness and death of her mother before she was 20, raising six children under rather difficult circumstances in the early years, the death of two sons (1980 and 1985) and of her husband Dan in 1991, and most recently fighting cancer. Her faith in God and her positive attitude brought her through those trials, not without scars, but with hope and a sense of humour. She was always regarded by her children with love, fondness and respect as a good mother.

Joy's charming manner, dignified bearing and genuine interest in her friends and associates endeared her to all. She will be remembered with affection and respect by all who were privileged to know her.

Snippets

Maxie DJ4YL and her sister, from all accounts, enjoyed their visit to Australia. In Sydney, Dorothy VK2DDB entertained them with a trip to Ku-ring-gai Chase, where they saw native flora and fauna, including a goanna, at very close range, followed by a barbecue lunch. In Victoria, she had a luncheon with some of the VK3 ladies, followed by a trip to Frankston with Erica VK3AEB.

Christine VK5CTY also had a luncheon with the VK3 ladies on her visit to Melbourne in September. It is nice to be able to put a face to a voice!!

Yes, we did talk a lot.

Congratulations to Anne Minter VK4ANN on receiving WIAQ merit badge.

Thank you to Dorothy VK2DDB for writing this column for the past four months.

More next month. **ar**

AMSAT

Bill Magnusson VK3JT – 359 Williamstown Rd Yarraville 3013
Packet: VK3JT@VK3BBS

National Co-ordinator
Graham Ratcliff VK5AGR
Packet VK5AGR@VK5WI
Please take note of the AMSAT information nets:
AMSAT AUSTRALIA net:
Control station VK5AGR
Check-ins commence at 0945z
on Sunday nights
Bulletin commences at 1000z
Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.
AMSAT SW Pacific net:
2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is $20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

MIR News

I've been getting a lot of requests for information on MIR activity (or lack of activity). It appears they've been having some trouble with their TNC and, because of this, activity has been restricted to voice QSOs, mainly with VK3CFI to help sort out the problem. Maggie reports that Sergei managed to leave a message in her PMS a few days ago, so it may not be too long before the problem is sorted out and the system may well be back on line when you read this. Keep listening on 145.500MHz.

Remember also that operating schedules on board MIR are subject to change and they have a very busy day-to-day routine.

The other reason why activity appears to lapse periodically is they keep Moscow time for all on-board activities. This means that, as our local access times slip back daily, their recreation periods don't coincide with the passes over VK. MIR will appear most active

to us when these recreation periods coincide with early to late evenings our time. Don't despair, the orbit of MIR is such that the cycles will repeat every couple of months. When operational, the packet system is normally turned on for continuous activity. It can be used for PMS message forwarding or digipeating around VK/ZL.

UoSat News

Following a period of inactivity the news bulletins on UoSat-2 (UO-11) are to be revamped. With the advent of the new UoSats there has been a lot of activity at the University of Surrey recently, and old faithful UO-11 has been neglected to some extent. A new news co-ordinator has been recruited and we can look forward to regular news updates on Uo-Sat-2 from now on. Rumour has it that a new UoSat is planned for launch in 1992. It will be similar to UO-14 with an open access 9600 baud BBS and no doubt using broadcast protocol. If this is successful we will have five operating digital mode satellites in orbit.

FUJI News

FO-20 has had a new software upload and is working again, mostly on digital mode. The new software is designed to make operating easier. I'd like to hear from any FUJI fans who have tried it. Is it any easier? Is it any more regular in operation?

STS-35

In December 1990 many Australian amateurs made contact with Ron Parise, WA4SIR on mission STS-35. They'll be happy to know their QSL cards are finally being processed. The people at NASA are hoping to have them all out in a couple of months.

OSCARs ain't OSCARs

A recent news item stated that the US Navy had "blasted" a satellite called OSCAR-22 out of the sky in a simulated test of some of its gadgetry. Don't panic, they're not practising on us! The US Navy has long had a series of navigational satellites which they call OSCARS. Thankfully it was one of them.

Change of BBS

Due to high noise at this QTH I've had to change to another local BBS. Please note the change to my packet address, which is now VK3JT@VK3BBS.

ar

Satellite Activity for August 1991

1. Launches

The following launching announcements have been received:

Intl No	Satellite	Date	Launch Nation	Period min	Apg km	Prg km	Inc deg
1991 —							
053A	MOLNIYA-1	01 Aug	USSR	12H17M	40681	653	62.9
054A	STS-43	02 Aug	USA	90.6	329	309	28.4
054B	TDRS-F5	01 Aug	USA	710.3	34390	793	0.0
055A	INTELSAT 6 F-5	14 Aug	ESA	743.8	35789	5881	3.3
056A	METEOR 3-5	15 Aug	USSR	109.4	1219	1196	82.6
057A	PROGRESS M-9	20 Aug	USSR	88.6	246	192	51.6
058A	RESURS-F13	21 Aug	USSR	88.8	272	195	82.3
059A	COSMOS 2154	22 Aug	USSR	104.9	1021	991	82.9
060A	BS-3B	25 AUG	Japan	664.0	37491	179	28.7

2. Returns

During the period 59 objects decayed, including the following satellites

1990-081C	PRC 32	24 Jul
1991-038A	PROGRESS M-8	16 Aug
1991-048A	COSMOS 2152	23 Jul
1991-052A	RESURS-F12	08 Aug
1991-054A	STS-43	11 Aug

3. Notes

1991-056A Meteor 3-5

This meteorological satellite was launched by the USSR using the TSIKLON booster rocket. The spacecraft also carries a US built Total Ozone Mapping Spectrometer (TOMS) on a joint US and Soviet mission to study the ozone layer.

BOB ARNOLD VK3ZBB

EDUCATION NOTES

BRENDA EDMONDS VK3KT – PO BOX 445 BLACKBURN 3130
WIA FEDERAL EDUCATION CO-ORDINATOR.

At the quarterly Executive meeting in October, the first formal steps were taken to set up a committee to monitor and manage the examination question banks. The establishment of this committee was required under the terms of the agreement with DoTC.

Those who have taken any part in producing examination papers under the first devolved system are aware that the existing banks as supplied by DoTC are inadequate and have an uneven distribution of questions across the syllabus. It is the aim of the committee to extend the scope of the banks by adding more questions to the sections which are under-represented, and to improve the quality of the banks by deleting controversial questions or rewriting them to an approved standard.

It was decided that before any question can be added to the bank it must be approved by at least three suitably qualified persons. Proposed amendments must be approved similarly. It is expected the additions or amendments will be submitted to DoTC for final approval.

This is going to involve considerable time and effort on the part of the committee. Possible questions provided by any member will have to be referenced to the appropriate section of the syllabus and then circulated to at least two other committee members. Only those passing all three will be eligible to be added. Any which do not get the seal of approval will be put aside to be reworked for later use as, at this stage, the top priority is to extend the range of questions.

I have asked previously in this column for any readers who have a collection of questions available to please consider submitting them for possible use. I will be acting as Secretary for the committee, and will be very happy to receive any or all that may be sent. I have recently been through the banks to find the areas of greatest need, so questions on the following topics would be most welcome:

* Any regulations questions;
* Novice level — any safety questions; electromagnetism; basic electron flow distinction between resistance and impedance; quality factor; piezoelectric effect; diode and zener diode theory; applications of amplifier and voltage regulator ICs; practical limitations of use of solid state devices; FM transmission and reception; common use circuitry in transceivers; the sunspot cycle; methods of feeding antennas; recognition of symptoms of interference.
* AOCP level — any safety questions; sources of EMF other than cells; electromagnetism; shielding in transformers;

power supply filters;
voltage regulation;
point contact diodes;
PLL VFOs;
oscillator stability;
speech processing system principles;
VHF/UHF techniques;
direct conversion receivers;
directive antennas;
mobile antennas;
dummy loads;
solar activity;
ATV/SSTV.

A note of warning to instructors and candidates: please *do not* use this list as a guide to topics that can be omitted from study on the basis that the banks are short of questions on them. I have selected areas where I see most need for improvement, as well as areas of deficiency. Already questions have been included which were not supplied by DoTC. But there is still much to be done, and any assistance will be greatly appreciated.

I am happy to report that most of those who have used the WIA Exam Service so far have found the system is working smoothly and efficiently. It does seem, though, that extra time must be allowed when ordering examination materials to compensate for possible slow action on the part of Australia Post.

May I take this opportunity to wish all readers the compliments of the season, and my best wishes for the forthcoming year. **ar**

HOW'S DX

Stephen Pall VK2PS – PO Box 93, Dural 2158

By the time you read this, we will have reached the last month of this very eventful year. Politically there were a number of significant changes in the world. We even had a short war in the desert.

The amateur fraternity has enjoyed one of the most exciting years in its DX history. Countries from where amateur activity was forbidden or non-existent in the past 10 to 20 years, have suddenly changed their outlook on the world. Checking through my notes of the past 12 months, I can see at least two-dozen significant DX callsigns, out of which the activities from Afghanistan (YA), Ethiopia (ET), Bangladesh (S2), Myanmar (XY0) and Albania (ZA) stand out. There was also a Saint Felix (XQ0), Canton Island (T31), Saint Peter and Saint Paul Rocks (PY0S), Pagalu (Annabon) (3C0) Tromelin, Glorioso and a St Brand Island operation, just to name a few.

Where do we go next? This is the title of a book written by Martti OH2BH about his DX activities, which clearly poses the question. Once one reached the DXCC Honour Roll, what do you do next? Turn to the IOTA movement and collect island activity by the hundreds? Work DXCC via satellites? Work three-band DXCC using the WARC bands only?

I suspect the majority of us will continue to work DX the same way as before. Hopefully a little wiser, with a more tolerant outlook on life. Hopefully with increased skills in operating techniques, but being ever grateful to the pioneers of the past 150 years whose scientific and sometimes accidental discovery enabled us to enjoy this fantastic hobby of ours. May I wish you the compliments of the season and a happy, healthy and prosperous new year!

Bangladesh — S2

On 29 August the Bangladeshi T&T Board made the decision to introduce amateur radio service to that country (see *AR* May, June, Sept and Oct issues). Jim VK9NS, through his previous stay in that country, has contributed in a very positive way to the establishment of the amateur service. He worked on the draft rules and regulations and the T&T Board used that information to establish the amateur radio proposal, which was then presented to the Bangladeshi Government for final approval. It is hoped that by December the amateur radio service will be fully integrated into the legislative system, and by January 1992 is is expected that Bangladeshi nationals and foreigners will be able to receive licences and operate freely.

To prove the point that the "light is around the corner" the frequency division of the T&T Board has issued the first licences to two local nationals. Saif, President of the Bangladeshi Amateur Radio League (BARL), was allocated S21A, and Nazim, the Secretary of BARL, was allocated the S21B callsign. Encouraged by these decisions, Jim VK9NS and Kirsti VK9NL made a formal application for issue of licences and for approval to operate from that country. Mid-October Jim and Kirsti received an official invitation to visit and to operate from Bangladesh, and they also received the first callsigns issued to foreign operators. S21ZA was issued to Jim, and S21ZB was issued to Kirsti. The covering letter bringing the good news mentioned that these callsigns were issued in recognition of the considerable contribution made by Jim to the furthering of amateur radio in Bangladesh.

The Smiths were to leave Norfolk Island on Wednesday, 23 October. However, this departure time had to be moved to the 22nd, due to a strike in Sydney which affected the transport system. They arrived in Dhaka on Thursday, 24, Friday being a Muslim holiday and the weekend busy with the CQ WW SSB Contest. Nobody expected them to be operative before 28 October, despite the fact that a CW operation would have been possible more or less immediately after arrival and setting up the station. Kirsti S21ZB is a keen CW operator, and her stay was limited, as she had to return to Australia on 4 November due to a prior and unavoidable engagement.

The DX world was waiting. By 31 October rumours were circulating on various DX nets about an imminent activity by Jim from S2. Some DXers even quoted the frequency of 14147 on which Jim will appear. At around 0500 UTC on the same day, Ken VK5QW has advised the "222" net in a language circumspect with all the refinement of diplomacy, that he received a fax at 0300 UTC from Jim, which indicated there has been a departmental "hiccup" in the scheme of things in Bangladesh. Ken quoted Jim as saying: "Do not give up hope and have faith. The relations with the T&T Board are soundly based, and the temporary difficulties will be ironed out soon."

The unexpected time delay made Kirsti's activity impossible, and she returned to Australia on 4 November as originally planned. Jim intended to stay on in Bangladesh until 20 November as originally planned, unless changed circumstances dictate his movements otherwise. At the time of writing this, there is still no news of him being on air. The mystery of the East has engulfed Amateur Radio again.

Albania — ZA

If you were interested in working Albania, I am sure by now you have succeeded in so doing. The other day I even heard a ZA calling "CQ" and there were no takers. The number of ZA stations heard on the band has multiplied since 17 September.

ZA1A was active in SSB, CW, RTTY and AMTOR mode, and closed the station on 7 October after it made over 70,000 contacts. Incidentally, the ZA1A activity was accepted by the ARRL for DXCC credit. ZA1QA and ZA1HA continued to be active, and were joined by the French operators signing ZA1ZXV (F6EXV), ZA1ZMX (F6FMX) and ZA1ZXV (F2VX). It appears that callsigns issued to foreigners by the Albanian PTT Board will start with the letter Z in the suffix. The French team left Albania on 11 October after 13,000 QSOs. According to some news reports, the ZA1A group trained 12 Albanian operators and they will soon be heard with the callsigns beginning with ZA1TAA through to ZA1TAL.

Only three weeks after the ending of the ZA1A operation, the first QSL cards have already been mailed. According to those who have already received them, the cards are of beautiful design, with the traditional two-headed Albanian eagle with a golden crown on its head. There were also some new stations on the air from Albania. ZA1ZSW Scotty W7SW was active for a short period. ZA1DX

Antoine 3D2AG in his own shack at home in Suva, Fiji.

The Rotuma "shack" used by many visiting amateurs, including Antoine 3D2AG.

was operated by Zoli, who arrived back in Albania on 12 October. QSL for HA1DX to: Globex Foundation, PO Box 200/66 1751 Budapest, Hungary. During the CQ WW DX Phone contest, ZA0RS was operated by HA0DU.

The ZA1HA activity was started by Zoli HA5PP and Imre HA5HO at the end of September. This station is connected with the efforts of the Hungarian Amateur Radio Society (MRASz) to give Hungarian radio amateurs the opportunity to work from Albania. (See *AR* March 1991 issue). HA5HO and HA5PP have gone back to Hungary, but Zoli HA5PP returned again as ZA1DX on 12 October.

On 2 October, a new team arrived from Hungary to operate ZA1HA. They were HA4XW, HA4XG, HA5OV, HA5FA and HA6NF. This new group will try to find a permanent location for the station, and hopes to train a number of Albanian operators, who will then continue to be active using the equipment and antennas left behind by the Hungarians. The logbook of the QSOs will be computerised, and QSLing for contacts made as from 2 October will be through HA6KNB, with the appropriate SAE and return postage. The station hopes to be active on VHF and UHF bands, including satellites. QSL to HA6KNB: Radio Club Salgotarjan, Box 115, H-3101, Salgotarjan, Hungary.

The "CQ" Worldwide DX Phone and CW Contest

These two contests took place on the weekends of 26/27 October and 23/24 November. The contest is always a good source of rare DX, usually with distinctive, and sometimes strange, prefixes, which cause a lot of headaches for many of us because of the missing QSL information. Here are a few of the exotic stations and in brackets the QSL route: • HG73DX (HA5ML) • XE1L (WA3HUP) • PJ9W (OH6XY) • V9AD (W3HNK) • ZM2K (ZL2IR) • P40W (N2MM), WE5I/KH9 and AD1S/KH9 (Oklahoma DX Association, Box 88, Wellston, OK74881 USA • H61T (Nicaragua) (SM0KCR) • HL9AA (N2JNZ) • PJ7A (Sint Maarten) (callbook address) • PI4COM (PA3CAL) • HS0E (John K9EL) • ZK1XC (K6PBT) • J80D (W8KKF) • 9M6NA (JE1JKL) • 6I2A (Mexico X32KB) • V31IX (KF6TC) • 5V7JG (F6AJA) • 5B4BCC (DL4MDO) • C6AFT (AA6NT) • CT3M (CT3BX callbook address) • ZW5B, ZX9A, ZY5EG are all in Brazil (PY5EG) • KH0AM (JE1CKA) • ZB2X (OH2KI) • V63DX (JH7HMZ) • V47NS (W9NSZ) • ZD8Z (W6CF) • KH2S (JH4RHF) • P40T (K4PI) • V47KP (K2DOX) • 9M6RO (JH1ROJ) • 9H4H (K6NA) • J43A (SV3AQR) • P40V (AI6V) • PJ1B (K2SB) • TT0A (F6FNU) • TU2QW (F2CW) • T30A (K7EHI) • TL8IM (AC3D) • D73DX (HL1IE).

Special Events Stations

During the year 1992, you will hear the special event station VI2RC quite often. The operator will be John VK2DEJ, and his direct QSL address is: John Saunders, 8 Toni Cres, Ryde NSW 2112 Australia. The occasion for the special event station is that the Ryde Municipality, which is an inner suburb of the metropolis of Sydney, celebrates its bicentenary and, during the year 1992, will be elevated to city status.

For those who are involved in the IOTA program (Islands On The Air), the station VK4VD will be activated from Stradbroke Island, Qld (IOTA OC-137), near Brisbane, from 2-5 January 1992. Activity will be in the SSB and CW modes, on 28-21-18 and 14MHz. QSL direct only, with return postage to VK4CRR: Bill Horner, 26 Iron St, Gympie, Qld, 4570 Australia.

Kermadec Island — ZL8

The not-so-good news is that George ZL8GBS (see *AR* November) might not be able to operate at all from the island. George is an employee of the New Zealand Conservation Department, and, hearing that George has received an amateur licence, the Department has decided not to give permission to George to operate his amateur equipment from the island. The official explanation is that amateur radio caused some problems in the past on Raul Island, including "illegal landings..."

The ray of hope is now with Ron ZL1AMO who, according to unconfirmed rumours, intends to activate Kermadec Islands some time in 1992.

Future DX Activity

* The Clipperton DX Club has announced plans for a major Clipperton Island Expedition scheduled for March 1992. Proposed callsign is FO0CI.
* Andy G4ZVJ is active in the Pacific region. He intends to go home on 16 December, but until then will be active from A35VJ, 5W1VJ KH8/G4ZVJ, and he also hopes to sign as T20VJ.
* Jacky F2CW will operate from Afghanistan as YA2CW starting from 19 October.
* Rod 5Z4BH who was active during October from the Republic of Comoros as D68RH will return to Arizona in December. However, in January he will already be in Karachi, Pakistan, and hopes to get permission to operate from there.
* The well-known Franz Josef land station 4K2OIL has closed down after 30,000 QSOs. The new operator is 4K2MAL, and QSL goes to UA4RC.
* Christine (ex-3DA0BX) and Paul (ex-3DA0BW) are now operating from Malawi as 7Q7B and 7Q7BW. QSL to N5MHZ.
* JX9EHA will stay on Jan Mayen Island until April next year. LA9EHA is the operator, and QSL goes to LA5NM.
* According to the news received from Paul AA2AV, the visit of the six-man US team to Vietnam has been delayed to January or February next year.
* 9L1US Dave will be back in the US soon.

In March 1992 he will go to Botswana A2 for a stay of three years.

Rotuma Island 3D2

The Rotuma Island group, located at 12'30" south and 177'00" east in the Pacific Ocean, is one large volcanic island, size about 10 x 3km, with a population of approximately 3000, and is surrounded by eight small islets. The group was discovered in 1791 by British sailors while searching for the "Bounty" mutineers, and it was named as Grenville Island. By 1850, the influence of various Christian missions caused a number of religious wars among the native Polynesian population. This unstable situation ended in 1881, when the island was annexed into the-then eight-year-old British Crown colony of Fiji. The religious influence is still very strong today, and the Sunday Sabbath is strictly observed. The name Rotuma in the local language means "Belief in the Church".

Rotuma gained its popularity as a new DXCC country in 1988, when a group of amateurs (K3NA, W6SZN, KN3T(YL) and VK8XX) activated the island for two weeks with the callsign 3D2XX, making 34,688 QSOs with 173 DXCC countries.

Soon after, 3D2RJ (ZL1BQD) and 3D2AH (OZ1XJ) appeared in August 1989 and had 10,500 QSO, of which about 60 percent were on CW. "Bing" VK2BCH is more or less a constant visitor to the island. Nineteen-eighty-nine, 1990 and 1991 were the years of his stay on the island, of about one month duration on each occasion.

The latest expeditioner was Antoine 3D2AG, who stayed on the island for one month in July 1991.

I received a long interesting letter from Antoine detailing his experiences on the island.

Antoine used his own callsign on Rotuma, being portable, but had a special QSL card printed for the occasion to acknowledge about 4000 QSOs he made on 10 to 40 metres, on which about 75 percent was on CW.

Antoine is a 24-year-old marine biology student at the university, who used his university holiday to be active from the island. Visits by tourists to the island are not encouraged, and one has to have the permission and the invitation of the local elders before attempting to land there.

Let me share Antoine's experiences with you by quoting from his letter:

... "There are no hotels or such facilities on the island, and one has to rely on the hospitality of the local population. Money has little meaning on the island, hence one has to be considerate of the local customs. Also, there is no regular power supply, and the only links with the outside world are the twice-monthly boat visits from Fiji, and a weekly flight from Nausori, Fiji. My own plans for a DXpedition to Rotuma materialised in late June 1991. Knowing a family on the island, accommodation was not a problem. Hence I packed up all my ham gear, including two solar panels for charging a 12v car battery. "Bing" VK2BCH kindly offered the use of his generator and battery on the island, as well as his beam. Hence, with eagerness I boarded the MV "Wairua" for the two-day trip to the paradise of Rotuma Island.

While the boat journey was by no means easy (especially on one's stomach) the scenery was beautiful, and the cheerfulness of my fellow passengers was extraordinary. On the Monday morning about noon we reached the island, and the wharf at Oinafa was bustling with people and vehicles (about six of them, the entire contingent of the island). After a day with my friendly hosts and a look at the marvellous white beaches at Oinafa, we set out by truck to Fapufa, the village where the beam and radio shack of 3D2XX fame is located. Fapufa is situated on the south-west corner of the island, and consists of three houses. The area is noted for its beautiful scenic beach and also an underground freshwater cave which is a favourite swimming spot.

The "shack" actually consisted of a palm-front hut, with provisions for an operating table and bed. The beam was about five metres from the hut and had to be turned by the "strong-arm" method. For ground connections I opted to throw an old bicycle frame into the adjacent lagoon. The 40/80m antenna was a dipole, swung between two coconut trees at about 66 feet. The set-up worked very well, especially on 40 metres. There is no mains supply of power, and I opted to connected the two 12v panels to a car battery for daylight operation.

At night, a 240v generator was used.

My operations were mostly nocturnal, owing to the poor propagation during the day. Ten metres was dead most of the time, although quite a few JAs were worked in the mornings on 14 and 28MHz. Fifteen metres was open to the States from 0000 to 0400 UTC, and I occasionally checked into the ANZA net and the "14222" net. The real action, though, did not begin until about 1030 UTC, when the 20m band was opening to the States. Large pile-ups were worked well into the early hours of the morning, including QSYs to 40 and 30 metres. The daily number of QSOs averaged about 300, mostly on CW. At times the generator would run out of fuel in the middle of the pile-up, and one had to switch to battery power for a solution. One night was really bad. I had to write my log, using a torch in one hand and the mike in the other. Owing to the difficulty of turning the beam, not too many Europeans were worked, but I did get through to most parts of the world. As far as living conditions went, the shack sported a wooden bed plus mosquito net, which was very useful. At night, all sorts of bugs and rats prowled the hut; sometimes it was quite scary. Overall, the expedition was a success, and I hope many operators were happy to get a "new one" as a result ..."

writes Antoine, concluding his letter. Antoine indicated that he will return to Rotuma in December 1991, but his time will be devoted to his university research studies, which will leave no time for amateur activity.

Interesting QSOs and QSL Information

Note: Callsign, name, frequency, mode, UTC, month.

HP1CDW-Henry-21210-SSB-0418-Sept. QSL to PO Box 10745, Panama 4, Panama.

D44BC-Julio-21205-SSB-0457-Sept. QSL to Julio S Vera Cruz, Box 36, Mindelo, Cape Verde Islands.

9Y4KB-Brian-21205-SSB-0517-Sept. QSL to Brian Eligon, 34 Lucas Hill, Malick, Trinidad.

XU0JA-21040-CW-0010-Oct. QSL to JA1NUT, Sin Onishawa 200-9, Naka, Mohka, Tochigi, Japan.

SV0HNU-14001-CW-0700-Oct. QSL to F6FNU (direct only) Antoine Baldeck, Box 14, F-91291, Arpajon, Cedex, France.

A35XJ-Les-21022-CW-0025-Sept. QSL to KE6XJ, Box 44, Bonita, CA9002, USA.

FY5FP-Chris-14016-CW-0440-Oct. QSL to ON4ZD, Leon Donner, Rue Gaston Dubois 6, B-1428, Braine I Alleud, BT Belgium.

XV3UU-Harry-14195-SSB-1239-Sept. QSL to RA3AUU, Harry Booklan, Box 18, 109457 Moscow, Russia.

8R1RBF-Richard-14222-SSB-0703-Sept. QSL to Richard B Fields, Box 10932, Georgetown, Guyana.

VP9WS-Rose(YL)-14191-SSB-1125t. QSL to Sept. QSL to WB2YQH.

JW0GB-Laila(HL)-14226-SSB-1207-Sept. QSL to Laila McClain, Box 445, N-9170, Longyearbyen, Norway.

ZA1ZXV-Paul-14222-SSB-0510-Oct. QSL to F6EXV, Paul Granger, 4 Impasse Du Doyen Henri, Visio, F-33400 Talence, France.

CN8FR-Idres-14222-SSB-0707-Oct. QSL to Box 990, CP-40400, Fes, Morocco.

XF3RGS-Salvatore-21205-0601-Oct. QSL to Box 1, Cancun Q Roo, 77505, Mexico.

EA9QD-Toni-14057-CW-0715-Oct. QSL via the Bureau.

5Z4FM-Jim-14013-CW-1410-oct. QSL to Box 39773, Nairobi, Kenya.

D68RH-Rod-21205-SSB-0535-Oct. QSL to KE3A William G Kessinger, 2521 Sharon Circ, Sunderland, MD 20689 USA.

V31UN-Peter-14226-Oct. QSL to KA6V Joan E Branson, 93787 Dorselyn, Junction City, OR 97448 USA.

YI1RJ-Rashed-14253-SSB-0622-Oct. QSL to Box 7147, Baghdad, Iraq.

W6RO-Jim-on the "Queen Mary", 14230-SSB-0537-Sept. QSL to WB6FNI James W Young, 1057 Apple St, PO Box 576, Wrightwood, CA 92397 USA.

RTTY News

There was a lot of DX activity on the bands during October, including the activity created by the CQWW RTTY Contest. Here are some contacts as supplied by Syd VK2SG.

* KP2N-14087-0535Z. QSL to WA4WIP.
* C9RKL-14082-1317Z. QSL to Kurt Nygren, Box 2524, Maputo, Mozambique.
* 6W6JX-28085-1005Z. QSL to Box 10, Kaolak, Senegal, Africa.
* VK4KW-14082-2329Z. QSL to WB2LCH.
* RA2FB-14085-0907Z. QSL to Box 261, Kaliningrad, Soviet SK, 23877 USSR.
* ZK1AP-14087-0608Z. QSL to Box 494, Raratonga, Cook Islands.

* PJ8UQ-14081-0328Z. QSL to W3HNK.
* SV0DV/9-14085-0356Z. QSL to WD4TDB.

CT3M-14085-1556Z. QSL to DJ6QT.

* HV3SJ-21091-1602Z. QSL to I0AOF.
* OD5SK-14085-1604Z. QSL to KB5RA.

From Here and There and Everywhere

* "Murphy" never sleeps and he reappears from time to time. The Spratly Island operation of Romeo (UB5JRR or 3W3RR) was under the callsign of 1S0RR and not under 1S1RR as indicated in the November issue of *AR*.
* During the weekend of 19-20 October, if you listened around the frequencies of 3590, 7090, 14190, 21190 and 28590kHz, you would have heard quite a number of young voices chatting about themselves, about hobbies, groups, Rovers, Guides, leaders. Yes, JOTA (Jamboree on the Air) was active again. From reports so far received, it was a great success. Last year 544,527 people world-wide participated in JOTA. Special thanks are due to the many amateur operators who willing offered their stations and their time for this very worthwhile youth project.
* The KP2A/KP5 Desecheo Island cards started to arrive in VK in the last days of October.
* News at hand indicates that ZS6AEN, who was scheduled to be on Gough Island ZD9, will not be going there.
* Jackie 3B8CF/3B7 returned to Mauritius after having made 17,000 QSOs on St Brandon Island.
* FF0XX is located in Marseilles, France, and it is a special call for the Clipperton DX Club.
* Jack T30JH was very busy professionally in the past months, which is the reason he was absent from the bands. Jack advised me that he was flying to Ponape on the November and hoped to be active as V6EJH. Later he proceeds to Kosrae Island, then back to Nauru and Kiribati.
* Bing VK2BCH, after a lengthy Rotuma activity, moved to Tuvalu on 8 October and was active as T20XV. He closed down that operation on 20 October and returned to Forster, NSW.
* 5J500/D1 is a Colombian special call for the commemoration of the 500th year of the discovery of the Americas.
* Heard Jim W3AJR saying on the band that he bought his first callbook in 1940. It was of only one volume and the price was $1. According to him, it was only one finger-width thick, and contained all the US and the rest of the world's callsigns. The present callbook is of two volumes, each 60mm thick, and the price of both books is 60 times the 1940 price.
* Austin VK5WO sent me the latest list of the VK stations on the ARRL DXCC Honour Roll at 30 March 1991. The first number represents the present country total. The second number includes deleted countries in addition to the present ones. Open/Mixed: VK6HD 321/342, VK5WO 320/352, VK3YL 319/357, VK4QM 313/364. Phone: VK6RU 322/372, VK5WO 320/349, VK6HD 320/340, VK4LC 319/354, VK6LK 319/336, VK9NS 316/317, VK5MS 315/362. There are no VK stations on the CW Honour Roll. When this list was compiled there were only 322 countries on the list, but, as from 1 September, with the addition of Penguin Islands, the total is 323.
* The DX Advisory Committee of the ARRL voted unanimously against recommending a new country status for Jarvis Island. The AH3C/KH5J QSL cards will be accepted for Jarvis Island. The AH3C/KH5J QSL cards will be accepted for DXCC credit for Palmyra Island KH5.
* The Armenian operators will use the 4J3, 4J4, 4J7 and 4J8 prefixes from 21 September until 31 December this year.

QSLs Received

Note: W=week; M-month; Y-year; FM-from; MGR-manager and his call; OP-operator and/or his call.

Direct cards received: TL8IM (3W FM OP) — VP2MLD (5W FM MGR KC4DWI) — 7Q7JL (5W FM OP) — AA4NP/AH9 (11M FM OP On return to US) — KC6GV (5M FM MGR LA6ZH) — HC8GR (1M FM OP) — VU2CVP (3M FM OP) — 3D2AG (Rotuma 2M FM OP) — FS/KB4VHW (3M FM OP) — 3C1MB (3M FM MGR EA7KF).

Bureau cards received: IL3/IK3HXB (1Y 11M FM OP) — OA4CAN (9M FM OP) — GJ2LU (1Y FM OP) — DK1CE/H44 (1Y 3M FM MGR FJ9ZB) — H44MS (1Y 3M FM OP) — PJ2WG (10M FM OP) — T30NAD (1Y 3M FM MGR JO1CRA) — YJ0AMH (10M FM MGR KF7PG) — ZC4BOB (10MFM OP) — ZL7TZ (12M FM OP).

Thank You ...

Once again, many thanks to all my helpers who supplied me with information by letter, photo and phone call. Your help is very much appreciated. Special thank you to: VK2CX — VK2DEJ — VK2ENU — VK2KFU — VK2QL — VK2SG — VK3DD — VK4CRR — VK4DA — VK4OH — VK4UA — VK5QW — VK5WO — VK9NS — HA6NF — 3D2AG, and the following publications: *QRZ DX, The DX Bulletin and the DX News Sheet.*

Late News

It was reported on the bands, and it even appeared in various DX publications, that VK0WW is active on 14010 and he asks the QSL cards to be sent via the Bureau. Others on the bands reported that VK0AI is active from Heard Island. This news is a surprise for the VK DX community, as we have no information about these stations. Neil VK6NE, who is the Federal QSL Manager for VK9 and VK0 advised me that, according to investigations which he carried out with the relevant authorities, VK0WW is not known on Macquarie Island, and no licence was issued to VK0AI. It appears the two station are "slims". Please ignore them and do not QSL.

Late Late News

Bangladesh message just received from Ken VK5QW on 11 November. Jim VK9NS advises that the licensing situation in Bangladesh has now been established and that a recommendation will go before the government. It is expected the licensing system will be authorised within a few days, which will make amateur radio legal in Bangladesh.

Jim expected to have permission on 12 November to operate under the callsign of S21U, which is the official callsign of the Bangladeshi P&T authority.

Jim intends to leave Bangladesh on 20 November, but there is a possibility he might get a visa extension for one week.

Have you advised the WIA Executive Office of your new callsign? Use the form on the reverse of the Amateur Radio address flysheet.

REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS – 21 WATERLOO CRS, LESMURDIE 6076

Audio Mixer

Repeaters mix several sources of audio to produce the output that is heard on air. Far more than the casual observer may think.

As many as eight or more audio sources may have to be mixed.

1. Repeater's receiver audio
2. Morse code ident
3. Time-out tone audio
4. WIA News audio
5. Encoded CTCSS tone
6. Link input audio
7. Time-out reset tone
8. Special function status tones (flat battery etc).

Your repeater may have few of the audio sources listed, but there is always a need for an audio mixer in a repeater. The circuit shown has been used in several VK6 repeaters with excellent results. This circuit is used to drive a true FM varicap diode in the transmitter. A voltage swing of approximately +-2 volts is requires with low distortion.

Distortion better than -50dB (0.1%)

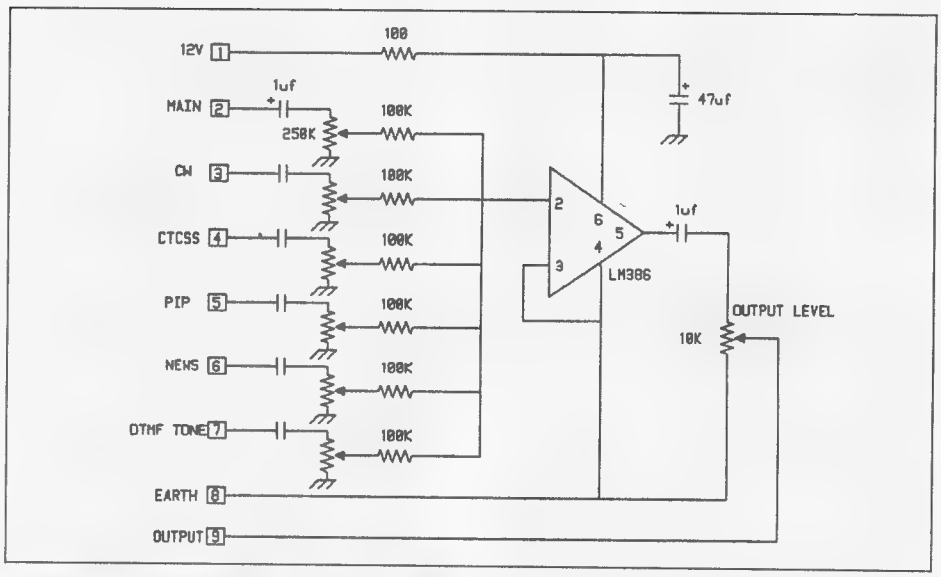
High output level, +-5 volt swing from 12 volt supply

Voltage gain set at 20

Low current drain, 5mA

Simple to construct

Any number of inputs can be added. The circuit shows six. The LM386 is a low power speaker amplifier and suits this application. The values of the input pots can be 100k to 500k. The 1µF input capacitors are required only if the incoming audio has a DC component. **ar**



SPOTLIGHT ON SWLING

Robin L Harwood VK7RH – 52 Connaught Cres, West Launceston 7250

Well, another momentous year has finally come to an end. Let us look back and retrospectively examine the past 12 months. First off, we had the Gulf War. The Americans started bombing Baghdad and other Iraqi cities on 17 January. For some weeks prior to this, we were able to hear, quite easily on shortwave, the build-up of American and other Allied military forces within Saudi Arabia and nearby Gulf states.

A furious propaganda war broke out on shortwave prior to the commencement of hostilities, and lasted well after they finally ceased. Several clandestine operations emerged from within Saudi Arabia and other mid-east locations, broadcasting to Iraq and occupied Kuwait. The Baghdad regime countered this with deliberate jamming of the broadcasts directed to Iraq. This was easy to spot, as the jamming had, and still has, a very distinctive sound, being quickly referred to as the bubble jammer. It appears on top of Arabic broadcasts, including those not normally targeted on Iraq. When the aerial bombardment commenced, all HF transmitter sites in Iraq and Kuwait were identified and destroyed. This removed the bubble jammer until recently when it began to cause problems once more.

Some listeners were very fortunate to hear Tactical Air Traffic on HF, especially around 11.1 to 11.25MHz. As well, the British Forces Broadcasting Service was heard here from BBC senders in Cyprus and the UK. They broadcast mainly cheerios from home to the troops. The Ground Offensive for the Liberation of Kuwait lasted only 100 hours, and again shortwave radio very rapidly provided news of events.

Radio Baghdad was silenced and has not yet reappeared with any significant signals. Neither have the Radio Kuwait senders, which were previously easily heard on HF worldwide. I guess there were more pressing problems in the rebuilding of the small Gulf nation after Iraqi plunder and excesses.

In April, Radio Canada International virtually closed its shortwave programming. Although still operational, it is at a much reduced level, with relays of the CBC domestic service in English and French. The only foreign-language services are in Russian, Ukrainian, Czech, Spanish, Chinese and Arabic. Popular English presenter, Ian McFarland, who hosted the SWL program, is now on Radio Japan's English service.

Other broadcasters to make severe programming cutbacks in their output, due to budgetary cutbacks, have been Radio Tirana in Albania, Radio Budapest in Hungary, the English Service of Kol Israel in Jerusalem, and the Asian and European sections of Radio Moscow have also been severely cut back. One major station that disappeared was "Radio Peace and Progress" from Moscow.

As well, the number of clandestine broadcasting stations has also markedly declined, especially in Africa. Ethiopia threw off its Marxist yoke and its support of rebel political groups in adjoining countries. They gave program time to these various groups over their senders. Also, the number of regional outlets on shortwave from within Central and South America appears to be slowly declining. There also seems to be less Indonesian outlets within the tropical bands, although the number of legal and illegal HF SSB networks across the HF spectrum, located in Indonesia, have increased, particularly within exclusive allocations such as aeronautical and amateur.

At the time I am compiling this column the civil war within the Balkans between Serbia and Croatia is at a stalemate. I realise European monitors have had numerous advantages over monitors elsewhere, because electronic activities on MW and FM have so far dominated. The Serbian-controlled Radio Yugoslavia has reportedly been observed but is, not surprisingly, very erratic in its output.

But the major development for the year must be the attempted coup in Moscow on 19-21 August. Listeners were startled by the reimposition of censored broadcasts and ideological programming for three days. But, as we now know, the coup failed dismally. Even Gorbachev was able to keep abreast of what was happening on the streets of Moscow. Although temporarily imprisoned in his Crimean dacha, he and his loyal aides hastily erected a shortwave receiver and antenna, tuning to the BBC Russian Service for the news. The Communist Party virtually disappeared overnight, in the public's eyes being discredited in influence and prestige.

The external services of Radio Moscow also emerged from the attempted coup with their credibility somewhat tarnished.

Since the momentous changes within the former USSR, we have seen major changes in the broadcasting organisations. Independent stations and networks have rapidly filled the void across the various sovereign republics. The Baltic countries of Estonia, Latvia and Lithuania have won their independence from Moscow. They had to rapidly develop their own shortwave senders, as the relays that were formerly provided by senders located elsewhere in the Soviet Union were no longer available. Signals are, I believe, best in the Nordic countries at this stage.

I would predict that events in the former

Soviet Union possibly won't impact as in previous times. Already several foreign broadcasters have commenced airing programs over Soviet domestic networks, obviating the need for HF broadcasting.

I believe the World Radio Administrative Conference (WARC '92) in Barcelona will become a significant milestone in the history of HF telecommunications. Clearly, with the virtual disappearance of jamming as a result of Cold War rivalries, and with financial cutbacks to international broadcasting and programming, perhaps there could be less demand in the developed world for HF broadcasting allocations. I believe a demand, particularly in Asia and Africa, for shortwave broadcasting will still exist.

Propagation conditions have been very poor of late. Just lately I have noted shortwave fadeouts often disrupt communications. This is the case on the decline of the sunspot cycle.

Well, that is all for December and for 1991. Don't forget, if you wish to send messages via packet BBS, the route now is as follows: VK7RH @ VK7BBS Launceston TAS AUS OC.

ar

POUNDING BRASS

GILBERT GRIFFITH VK3CQ – 7 CHURCH ST BRIGHT 3741

The information on learning the code featured this month was kindly sent to me by Jim Gray VK2DPU and is from the Marconi School of Wireless way back when its address was in 47 York St, Sydney, and the phone number was 2 0233! There is no date on the (copied) publication so I wonder if anyone knows when the booklet was produced.

These days there are many ways of speeding up the learning process, from tape cassettes, which would have been undreamed of then (as would have tape recorders), to the latest computer programs which are "intelligent" enough to monitor a student's progress and alter the lessons accordingly.

My own learning was done from cassette using the well known EISH5 formula, and I can now see how this process was initiated, because the Marconi School used the EISH5 formula for its sending practice in this publication, the learning of the alphabet was just that, with no preference to groups of letters.

What follows are only excerpts which I hope you will find interesting and maybe helpful as well; there is not enough space to print the lot in this column.

Introduction

Before commencing to learn telegraphy, the student should carefully read and understand the instructions contained herein. He should always practise strictly in according with them.

A number of methods of training are or have been in general use but, after careful investigation of all these methods, and in the light of many years of practical experience in this subject, we have adopted the methods set out as the most efficient.

Learning telegraphy requires many hours of practice, which are only lengthened by inaccurate procedure or careless or slovenly work. Five minutes' neglect of simple rules may undo an hour's practice. Ten minutes may undo the benefit if many hours of conscientious work.

... Handwriting is very important and, as the student must spend many hours in practice, concentration on this point will not only improve his handwriting but, for reasons explains later, will greatly assist in learning the code.

The modern method of learning morse relies on the principle of training the subconscious mind to recognise the symbol, not as a series of dots and dashes, but as a letter or numeral, and it is obvious that at high speeds the action of reception and writing are done without conscious effort. We might compare this with a person reading a book. He is so trained that while he subconsciously recognises a letter, he consciously reads the word as one complete unit, although the subconscious mind actually checks every letter. By concentrating on handwriting, as previously indicated, the student does not think of the morse, therefore the conscious and subconscious minds are in step and progress will be much faster ...

If the student has not previously undertaken morse training, the following procedure should be followed until he is able to receive morse signals at about five words per minute.

How to Learn Morse Code

Rule lines on the paper, dividing the sheet into five columns. Look up the morse alphabet on page B-3 and it will be noted the symbol for A is "d'dah" (pronounced "dit dah"). The student should sing "dit dah" to himself (preferably aloud) and then write A in the left-hand corner of the first square. Do not commence to block until the symbol has been completed. Repeat this 25 times, writing five letters in each square, and keeping the letters to the left-hand side so that if the vertical lines were removed there would be at least a double space between the last letter in one group and the first letter in the net. Do each letter in the same way, including the numerals. Practise this until able to sing the alphabet and numerals without reference to the code. Carry on singing each letter five times, making a complete group of each. If any hesitation is experienced, the student should revert to the earlier procedure of singing each letter 25 times for several complete alphabets. Do not write the letter or numeral until the symbol has been completed. For instance, if the student writes the D before the last "dit" is sent, this is equivalent to commencing to write a word before pronunciation is complete, and leads to the common fault in telegraphy called "journalising", which is due to anticipating a letter or word. In the above example, the sender may be sending the letter B, the student has commenced to write D when the extra dit is received, and he has to change the letter to B. This causes confusion and wastes a lot of practice ...

The student may by diligent practice sing to the speed of up to 10wpm without having heard a signal. After attaining this speed, or before, the student should have access to morse receiving by means of a buzzer, and all future practice should follow along the lines of signal reception ...

In undertaking telegraphy instruction the following order should be followed:

1. The student should make himself thoroughly conversant with the method of blocking code letters and numerals (capitals). It is not necessary to practise blocking separately but to read the section dealing with blocking and understanding the reasons underlying the system.
2. Learn Morse Code in the manner proscribed, ie "singing" until able to recognise all morse symbols without difficulty. Practise reception of the code until able to receive about 8wpm.
3. Concurrently with singing practice, but after the student can recognise all symbols, commence sending practice in accordance with the directions contained herein.
4. When able to receive code at about 8wpm carefully read and understand the instructions for writing Plain Language, and proceed to practise receiving plain language.
5. Divide receiving practice into periods of Plain Language and Code.
6. Become conversant with test conditions. The method of conducting tests is set out herein. Always remember that accuracy is paramount and, whilst a number of errors may be permitted in a test, in commercial telegraphy errors are not permitted.

Next month I hope to continue with more from this booklet in the form of learning to send Morse Code. ar

Don't buy stolen equipment – check the serial number against the WIA stolen equipment register first

INTRUDER WATCH

GORDON LOVEDAY VK4KAL – AVIEMORE, RUBYVALE 4702

WIA IARU MS Summary September 1991

Date	Time U/TC	Frequency in kHz "M" or "E"	Callsign if Heard	Mode Air	Time on	Logs X	Details of Traffic if Known any any Other Information
230991	1303	7003	V	A1A			Beacon
2009	1100	7007/8		J3E		5	Asian traffic 2-way
2409	0001	7009		F1B		2	No shift stated
2009	1125	7012		J3E		7	B/caster Asian language
2908	0915	7015/7016		F1B/B9W		2	Would like shift please
300991	1020+	10107		A3E?			B/cast in Spanish/test transm
2209	0951	14007	UMS	F1B +A1A			1st logging on this freq
230891	0800	14023.5		F1B	24hrs	2	250Hz shift
1509	0850+	14046	R Aust	A3E			Spurious mixing?
mni	1105	14044/7		J3E/L	24hr	28	Asian RTF
mni	1039+	14045		N0N		6	Carrier for telephone channels
mni	1020	14058/63		A3C	24hr	28	Helschreiber ... China?
mni	mni	14075	VRQ	A1A		30	Vietnam. 5ltr code tfc
130991	1410	14117	J2K	A1A			Ltrs & figs
1209	1115	14119		F1B		3	1000Hz + A1A ltrs & figs
mni	0620+	14120		F1B		6	500Hz shift
230891	0812+	14170	MNR	F1B	24ht	10	Moscow Nav radio 250Hz RTTY
1009+	1020+	14183/4		F1B	24hr	3	1000Hz RTTY
1209+	mni	14203/4		F1B	24hr	8	Rmks "QJK5 QCM K"
mni	mni	14212		F1B	15hrs	26	1000Hz
1209	1210	14215	CAZ	A1A		13	also P7A
1609	mni	14217/8	UMS	F1B	18hrs	21	Mos Nav radio USSR
0709	1246	18074/5		A3E		6	B/c stn prog in Chinese +18120
0209+	mni	21031	UMS	A1A		16	
0209+	0830+	21032.5	MNR	mxd		21	Not UMS tfc to UUMS
2608	mni	21115	P7A	A1A		26	Was CQ5 mni freqs
0609	0450+	21135	VVH	F1B		2	200Hz ID A1A 0558 z
1209+	1000+	21448	R Mosc	A3E		15	Severe distortion & Splatter
Can be resolved in F3, located at Yerevan, Armenia							
2209	2315	28640	BBC	A3E??		2	BBC World Service News in Indonesian, English
language lesson at 2330z.2345z transmx change sig degraded							

Reports from VKs 2GDF, 4BG, 4AKX, 4BHJ, 4BXC, 4BTW, 4CAS, 5LG, 5BJF, 6RO, 6XW/M, 6BWI.

Notes this month come from Col VK4AKX, who is a dedicated follower of the intruders emanating from USSR (Russia). thanks Col.

Of most importance, as they cause much strife to our operating, are 14.058-14.063MHz involving QSY hopefully caused by amateur QRM (keep it up). Suspected of being in China: 14.211.5MHz-14.215MHz, two channels of F1B (not F7B) each channel is independent of the other; normal frequency change is in September each year, possibly due to poor conditions. 14.217.5MHz, this is a true UMS station, traffic is from UMS; its procedure in CW mode is as in combined operations in WWII. 21.031.5, Moscow Naval Radio with traffic to UUMS in CW, F1B various shifts (RTTY), but 250Hz most used. Transmissions have a lot of RYs. 21.325.5/21.328MHz; "nest" of three R7Bs, Nil ID R7B used extensively by USSR naval shore stations. Weather (WX) fax stations are on the increase, conditions again I suspect; drum speed around 120rpm, heard on 21.344.5/21.347.5MHz, no ID. Note .5 in frequency, point to navigational transmissions, most are on air about 18 hours, 60 percent of that time with traffic. I hope this will enlighten some of our observers that it's worthwhile keeping a copy of logged stations, and, referring each time, a dossier can be built up. It will come in very handy for DoTC. The Radio Society of Sri Lanka has joined "The System". 73, VK4KAL

KNUTSHELL KNOWLEDGE

GRAHAM THORNTON VK3IY

A brief overview of what other magazines have to say. The information given below has been supplied to the WIA free of charge by Thornton Publishing. Your divisional library may have copies of the references quoted.

Amplifiers

All-Purpose Wideband Amplifier.

Andrew Pierson, *EA* vol 53 No 11 Nov 1991 pp 122 - 123, 136. il cct. A design is given for a wide band amplifier within 3dB from 5Hz to 32MHz. The output swing is 1.8V p-p into 75 . Input impedance is 1M .

Power Amplifiers.

Peter Phillips, *EA* vol 53 No 11 Nov 1991 pp 56 - 61, 103. il ccts, cmp, diag, pcb and photos. A general dissertation on the design of audio power amplifiers is given. A specific design is presented for a class AB amplifier suitable for an 8 speaker, requiring 190 mV p-p for full output.

Antennas

Magnetic

The Square Pancake Antenna. Ken M Doolittle W2SMR, *73* issue #372 Sept 1991 pp 18, 20. il diags and photos. A seven-turn small loop is described which is suitable for indoor use. It covers 80 to 20m. Taps on the loop provide matching for different bands and for extremes of the same band.

Marconi

Dual-Band Vertical. David F Curry WD4PLI, *73* issue #372 Sept 1991 pp 38, 40 - 42, 44. il ccts, diags and photo. An antenna with capacity top hat is designed for both 160 and 1750m bands. The antenna is insulated from ground by mounting on a bottle. A variometer design is included.

Mechanical Details

A Limited-Space Dipole Support. Al Dion W1DWX/4, *QST* vol LXXV No 9 Sept 1991 pp 22 - 23. PVC pipe and fittings are the basis for a cruciform structure, on the upper portion of which an inverted vee is mounted. The lower leg drops into a TV mast or PVC pipe. A specific design is given for 10m, but it can be scaled for other bands.

Rotating Tower Systems - Rohn 25 Rotation system. (Product Review) James W ('Rus') Healy NJ2L, *QST* vol LXXV No 9 Sept 1991 pp 35 - 37. il photos. An evaluation is given for this system, which rotates the entire tower instead of an individual beam.

Miscellaneous

A Clothesline Dipole. Ig J Galgan WA2VIA, *QST* vol LXXV No 9 Sept 1991 p 32. il diag. A 15m dipole is attached to a continuous external clothesline, solving a space problem for an apartment dweller.

The L-O-N-G Long Wire. Stan Gibilisco W1GV, 73 issue #372 Sept 1991 pp 46, 50 - 51. il diags. The erection of an 880 foot long wire antenna is described. The difficulties of erection and results obtained are discussed.

Multiband

Carolina Beam. (Product Review) Bill Clarke WA4BLC, *73* issue #372 Sept 1991 pp 34, 36. il diag and graphs. A controlled feeder radiation Windom type antenna is reviewed. Its frequency response extends from 10 to 80m. Polar azimuth and elevation plots are presented.

Economical Mobile HF Antenna. John Portune AA6NG, *73* issue #372 Sept 1991 pp 26, 28. il cct, diag and photos. A modification is described to convert a Radio Shack 21-908A Trunk Lid Mobile CB antenna to HF operation from 10 to 40m. A different loading/matching coil is required for each band.

Product Review

The Outbacker All-Band HF Mobile

Antenna. David Cassidy N1GPH, *73* issue #372 Sept 1991 pp 12, 14. il photos. A review is given of this multiband antenna after a 12 month road test.

VHF/UHF

More on the Glass-Mounted 2-Meter Mobile Antenna. Bill English N6TIW, *QST* (Technical Correspondence) vol LXXV No 9 Sept 1991 pp 41 - 42. il diag. A pair of wire radials is used when this antenna is installed on a vehicle which does not have a metal roof.

Yagi

Indoor 10 Meter Beam. Jacquelyn J McGlothlin N9CAP, *73* issue #372 Sept 1991 pp 24 - 25. il diags and graph. An indoor two element Yagi is described, which is constructed of coaxial cable. A coaxial balun is incorporated as part of the antenna. 5 - 6 dBd gain is claimed.

Audio

Simple Low Cost 'Karaoke' Adaptor. Rob Evans, *EA* vol 53 No 11 Nov 1991 pp 82 - 85. il cct, cmp, diag, pcb and photos. A differential amplifier eliminates lead singer's voice from stereo recording. A microphone input is mixed with the residual music, to allow voice substitution.

Sound Effects Generator. Ben Buxton, EA vol 53 No 10 Oct 1991 p 57. il cct. Two 555 timers and a decade counter are combined to produce a ten-note musical sequence.

Computers

Computer Interface. Greg Smith, *EA* vol 53 No 11 Nov 1991 p 72. il cct. An I/O data device which uses the computer parallel port to communicate.

Electronic Devices

Automotive

Budget Car Alarm Mk2. Rob Evans, *EA* vol 53 No 10 Oct 1991 pp 58 - 61. il ccts, cmp and photos. An improved version of an earlier design is described. Both exit and trigger delays are incorporated. The device senses any **change** in battery voltage caused when loads as small as the interior dome lamp are activated. A detailed description of the 555 timer is also given. The alarm is available in kit form from Dick Smith Electronics cat K-4310 price Aust$32.95.

Miscellaneous

A Simple Touch Light. Peter Murtagh, *EA* vol 53 No 11 Nov 1991 pp 93 - 95. il cct, cmp, pcb and photos. A touch sensitive toggle switch operates three LEDs. A discrete transistor flip flop is used.

Fluoro Light Wand. Peter Phillips, *EA* vol 53 No 11 Nov 1991 pp 90 - 92. il ccts, diag and photos. A hand held 18W fluorescent light is described, which is powered by six NiCads and an inverter. A kit is available from Oatley Electronics, PO Box 89, Oatley West, NSW 2223. Price Aust$ 27 posted.

Mini Night Viewer. Branco Justic and Peter Phillips, *EA* vol 53 No 10 Oct 1991 pp 78 - 82. il cct, cmp, diag and photos. A design is presented for an infra-red hand held image converter. This enables images to be viewed in very low light levels, such as starlight. A kit is available from Oatley Electronics, PO Box 89, Oatley West, NSW 2223, Australia, price Aust$299.

Quiz Game. David Pickering, EA vol 53 No 11 Nov 1991 p *73*. il cct. A circuit is given which provides an individual push button and light for a number of contestants. First button to be pressed operates a communal buzzer and excludes other buttons. A reset button is operated by the compere.

Timers

Automatic Light Switching. A R Lyons, *EA* vol 53 No 10 Oct 1991 p 56. il cct. A circuit is presented which switches on exterior lights when the ambient light reaches a low intensity. The lights then remain on for a pre-set period adjustable from 2 to 7 hours.

Narrow Band Modes

Decoders

Improved HF Weather Facsimile Programs. Ben Vester K3BC, *QST* (Technical Correspondence) vol LXXV No 9 Sept 1991 pp 40 - 41. il cct and photos. A description is given of an op amp clipper which provides square wave output to a computer serial port. High resolution software, written in assembly language is available from the author.

S-VGA, VGA/EGA Fax Pics for Listening Post II. Jim Rowe VK2ZLO, *EA* vol 53 No 10 Oct 1991 pp 44 - 45. il graph. A description of an improved version of Listening Post II is given, with better resolution. The kit is available from High Tech Tasmania, 39 Pillinger Drive, Fern Tree, Tasmania 7054, Australia, price Aust$63 including software.

Hardware

PTC_The PACTOR Controller. Martin Clas DL1ZAM and Peter Mack DL3FCJ, *QEX* #116 Oct 1991 pp 7 - 11. il ccts and photos. A complete circuit is described for a PACTOR controller. An 8MHz CMOS version of the Z80 is used as the microprocessor. A series of LEDs indicate the system condition. AMTOR and RTTY can be used; the data can be transmitted in the form of Huffman code or ASCII. A choice of FSK or AFSK is available.

Miscellaneous

PACTOR - Radioteletype with Memory ARQ and Data Compression. Hans-Peter Helfert DL6MAA and Ulrich Strate KF4KV, *QEX* #116 Oct 1991 pp 3 - 6. il diag and graph. A description is given of a new system which combines the benefits of AMTOR and packet. Each packet consists of a header, data, status indicator and check code. A summing technique (ARQ - Automatic Repeat reQuest) eliminates noise from repeated transmissions. The baud rate automatically changes from 100 to 200, depending on transmission path conditions. Data compression uses the Huffman code in such a way that the most frequently used characters require the least time for transmission.

Power Supplies

Batteries and Cells

Longer Life for NiCads - 1. James Moxham, *EA* vol 53 No 10 Oct 1991 pp 30 - 32. il ccts, diag and graph. A general dissertation on the technology of NiCads is given, including the fundamental chemical reactions. Permissible charge and discharge rates are discussed. Techniques and precautions are given to extend useful cell life.

Quantum Ham Battery. (Product Review) David Cassidy N1GPH, *73* issue #372 Sept 1991 p 22. il photo. A review is given of this 12V 2.1Ah sealed lead-acid battery, which is suitable for extended operation of handhelds.

Battery Chargers

Constant Current Charger. Ranjit Singh, *EA* vol 53 No 10 Oct 1991 p 57. il cct. A two transistor circuit is used for constant current battery charging. Formulars are given to adjust the charging current.

Series Regulated

Low-dropout Voltage Regulator. H F Nissink, *EA* vol 53 No 10 Oct 1991 p 57. il cct. A series transistor and an LM317 are combined in such a way that the input/output voltage differential may be as low as 0.1V.

Variations on the 18V/1A Benchtop Power Supply. Rob Evans, *EA* vol 53 No 10 Oct 1991 pp 64 - 66, 68, 72. il cct, diags, graph and photos. A laboratory power supply is described which can be built to give either up to 18V output at 2A, or up to 30V at 1A.

Receivers

Accessories

Antenna Tuner and RF Preamp. Jim Rowe, *EA* vol 53 No 11 Nov 1991 pp 74 - 81. il cct, cmp, diag, pcb and photos. A solid state pre-amplifier and antenna tuner is designed to operate over the range of 500 kHz to 30 Mhz, improving receiver performance. Varactor tuning is used.

Product Review

AOR AR2500 Scanning Receiver. Kirk Kleinschmidt NT0Z, *QST* vol LXXV No 9 Sept 1991 pp 33 - 35. il photo. A review of this equipment is presented, complete with measurements.

Technology

Automotive Engine Control - 1. Tony Mercer, *EA* vol 53 No 11 Nov 1991 pp 32 - 35, 99. il ccts, diags, graphs and photo. A review is given of modern techniques for electronic carburettion and ignition in motor vehicles.

What Your Frequency Display Really Tells You (2). David Newkirk WJ1Z, *QST* vol LXXV No 9 Sept 1991 pp 26 - 30. il diag, graph & photos. A discussion of various methods adopted for display of frequency is given. Accuracy is distinguished from precision.

Our Evolving Network of Communications - 1. Robert Owen, *EA* vol 53 No 11 Nov 1991 pp 28 - 31. il diags, graphs and photos. An overview is given of Integrated Services Digital Network (ISDN). A/D conversion and PCM are discussed, together with X.25 protocol for packet transmission.

Test Equipment

Miscellaneous

'Lightning Meter' for SWLs. Alex Eades, *EA* vol 53 No 10 Oct 1991 p 56. il cct. A simple instrument is described which measures the relative intensity of lightning discharges; time differences can determine distances.

Probes

Poor Man's Logic Probe. Paul Fitzgerald, *EA* vol 53 No 11 Nov 1991 p 73. il cct. A simple probe is presented which indicates a high or low state by the illumination of an appropriate LED.

Transceivers

Home Brew

A High-Performance Easy-to-Build 432 MHz Transverter (2). Ed Krome KA9LNV, *QST* vol LXXV No 9 Sept 1991 pp 18 - 21. il cct and photos. The transverter alignment is considered in this part. The 10W power amplifier is discussed. This is designed around a Toshiba S-AU4 linear 'brick'. An optional 70cm band pass filter is also described as a sidebar.

Glossary of Abbreviations

il The article contains illustrations, a list of which follows.

cct A circuit diagram
cmp A component layout drawing
EA *Electronics Australia*
diag A mechanical drawing
pcb A master drawing from which printed circuits may be produced
QSTVE *QST Canada*
RadCom *Radio Communication*
RadZS *Radio ZS*
73 *73 Amateur Radio Today*

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ar

DIVISIONAL NOTES

VK2 NOTES

Tim Mills VK2ZTM

Another year almost gone. May I, on behalf of the Council and office bearers, wish all members, wherever you may be, the compliments of the festive season and may 1992 be an improved year for all.

Over the holiday break the Divisional Office will be closed for personal visits and the dates will be given on the VK2WI broadcast. Mail will be cleared, PO Box 1066, Parramatta 2124. The fax will be on line (02) 633 1525, and the phone answering machine on (02) 689 2417. The last live broadcast from VK2WI will be on Sunday, 22 December. The first for 1992 will be on Sunday, 12 January. On 29 December and 5 January there will be a morning transmission with mainly pre-recorded material. There will not be any major evening segment, other than the tape being played via the Gladesville ATV segment on VK2TVG on Channel 35 at 7.15pm for those in range of the Sydney transmission.

There are almost 50 clubs and groups in VK2 affiliated with the Division. As part of the Technical and Historical tape which precedes the VK2WI news, it is planned to include a slot for a thumbnail sketch from each group in turn. It can last up to 10 minutes and be submitted by either typed copy or cassette tape. The contents should cover the origin of the club/group, present activities and future aims, whether you conduct classes, operate repeaters, meeting details, membership size and the area or region served; if you conduct field days, contests or awards. In fact, it is to record your history before it is lost or forgotten.

This lack of maintained history was brought home in the Division recently, when some details were sought about the early and subsequent development of Dural. There are some brief details in these columns of *AR* and in some bulletins of the day. There are, however, gaps with minute books and other official records because of cleanups to get rid of the "old" rubbish. To try to reduce some of these gaps, we would welcome any copies which previous office bearers may have tucked away. Minutes, newsletters, photos and anything which relates to the development of Dural and Atchison Street properties. If you can help, please contact the Divisional Office. In fact, anything which relates to the history of Amateur Radio should be checked before it's tossed!

Looking for a Christmas gift or need to drop a hint? The Divisional Bookshop has most of the books listed in this edition of *Amateur Radio*. Call in or contact the office for details.

New Members

These members joined the NSW Division during October, and a warm welcome is extended to them.

H	Bayraktar	Assoc	Lalor Park
H	Brende	VK2LHB	Wahroonga
P T	Britton	Assoc	Manly
P	Chapple	VK2KPC	St Marys
E G	Chittick	VK2EGC	Murwillumbah
P	Collins	Assoc	Rozelle
N	Deitch	VK2ZXC	Port Kembla
B	Edmonds	Assoc	Woodpark
P J	Field	Assoc	Miranda
L	Gay	Assoc	Condell Park
P	Hughes	VK2PVG	Vincentia
W	Hoevenaars	VK2TRY	Glenhaven
J	Mawrey	Assoc	Abermain
S J	Megarrity	VK2LSM	Londonderry
W B	Patterson	VK2LWP	Wagga Wagga
J	Pollock	Assoc	Lavington
G	Ryan	Assoc	Repton
J G	Scherrenberg	Assoc	Castle

A further note to repeater groups. Check the details which appear in the callbook. Are there any corrections required? Send these to the State Repeater Co-ordinator early this month, so the data issue of *AR* which comes out in February is up to date. Any group interested in setting up a 6m beacon in the 50MHz window should register interest with the SRC. It will be on a shared frequency. Much of VK2 has now reached saturation with 2m repeater allocation. It is no longer practical to allocate a channel which does not overlap with another service area. If new systems are required, they will have to adjust coverage and accept co-channel sharing. There is still plenty of space for systems on 70cm, so why not consider this band?

See you in '92

ar

VK3 NOTES

Barry Wilton VK3XV

It is quite some time since VK3 notes appeared in print as we simply have not been able to obtain the services of a suitable "scribe" on a regular basis; however, it is to be hoped the situation will be rectified in 1992.

A lot has happened during the past year, including the purchase of the new property in Ashburton and the setting up of our new office. No longer do we have to pay rent, and the acquisition of the new premises will provide a substantial and secure asset base for the Division in the future.

The Division is in a sound financial position at this time as the result of much hard work and forward planning. However, we must not become complacent, and need to be vigilant and recognise change in the hobby and the needs of today's members.

History shows that the Victorian Division has, over the years, been financially unstable, with periods of prosperity and then, for various reasons, it has undergone a process of decline and suffered substantial losses.

It is a matter of record that when the going is tough, members are generally unconcerned, and the destiny of the Division is left to a handful of hard-working and dedicated people; but, when we are "riding high" there always seems to be an influx of interested members with a multitude of suggestions and new ideas.

More than anything, the Division needs the participation of members with enthusiasm and ideas, and who are genuinely prepared to work to achieve their goals, not simply put forward suggestions and expect them to be implemented by others.

When the Division was in the doldrums, member interest in the administration of its affairs was minimal and presented a problem in terms of human resources. But, now we are financially secure and administratively responsible, another problem has surfaced.

There may be groups of amateurs or organisations which believe they should have more input into the policies and financial management of the Division, and whilst the benefit of the hobby in general may well be their prime motivation for this thinking, it may also be that they desire to further their own personal ambitions and secure a benefit for the group they represent. This may well be to the detriment of the Division and the members as a whole.

If history is not to be repeated, it is advisable to ensure the members' representatives charged with the responsibility of managing the affairs of the Division are persons preferably not aligned with any specific group or organisation which may benefit, either directly or indirectly, by their participation in the decision-making process.

The program for 1992 is one of challenge, and will see a considerable upgrading of member services — the first of which will be the regular opening of our new premises for "disposals" sales on Saturday or Sunday.

Nineteen-ninety-two will see the commencement of a new era of repeater linking through AUSSAT, and further linking of the Sunday Broadcast in country areas.

There is rapidly increasing demand for assistance to members experiencing interference problems, especially in the area of Telecom equipment which suffers from RFI. We expect to be able to provide some positive help in the new year.

Operating costs of the Division have risen during the year, and our income derived from investment capital has been considerably reduced by the property purchase and falling interest rates. The economic recession, which is particularly bad in Victoria and affecting many members, has greatly influenced Council's decision regarding fees for 1992.

Good financial management practice dictates that we should budget to increase our invested capital annually by an amount at least equal to the rate of inflation. To achieve this the Divisional component of the subscription would need to be increased by $5.50. However, in view of the financial hardship being experienced by many members, and having regard to past profits, there will be a fee increase of only $1.25 in the Divisional component for 1992.

The Divisional Office will be closed during the Christmas/New Year holiday period, as has been the practice in recent years. The last day of business will be Thursday, 19 December, and we will re-open on Thursday, 6 February 1992.

Nominations for Council

Nominations for the 1992/93 Council will close at 3pm on Friday, 17 January 1992. Nominations will be accepted only on forms available from the Secretary. Nomination forms must be obtained prior to close of business on Thursday, 19 December 1991. Nominations may be returned by ordinary mail to the office, and will be processed during the holiday period.

Membership Applications

These are continuing to flow in at a healthy rate, and as a number of applications were received in January last year when the office was closed, arrangement has been made for all new member applications to be processed during the holiday period.

Wishing all members a very Merry Christmas and the continued enjoyment of amateur radio in 1992. **ar**

5/8 WAVE

JENNY WARRINGTON VK5ANW

I'm sitting here, on a very wet Adelaide Grand Prix race day, thinking how ironic it is that I have just spent six weeks in England, and had only one afternoon of rain in all that time! The main focus of the trip was my mother's 80th birthday but, along with my daughter, Wendy, I managed to catch up with a lot of friends and relatives, most of whom I had not seen in 27 years. We also managed two nights in ZL on the way over and two weeks in the USA on the way home, staying with a friend. I would like to be able to tell you of my vast amateur experiences whilst abroad, but you'll have to make do with the truth! Although I spoke to several amateurs on the phone (Kathy ZL2ADK, Shirley GM4LUS, Sheila G3HCQ and Nigel G4IJF (the OM of Angie G0CCI), I actually met only three face to face. Two of those were ZL YLs Alma ZL1WA and Celia ZL1ALK (I'll tell you about that another time, in the ALARA column). The other was John G8JBK, with whom I grew up in Essex (suffice to say that more time was spent reminiscing than discussing amateur radio, though it did get a mention).

I would like to thank Rowland VK5OU for taking over in my absence. You did such an excellent job, I thought I might be able to retire; but I have a sneaky feeling that YL Pam wouldn't be very happy about that.

My first amateur activity on my return was the Old Timers' Lunch at the Marion Hotel on 29 October. As usual, a good time was had by all, but it is always sad to hear of those who became Silent Keys during the year, or who are now too sick to attend. We were pleased that George VK5RX and Thelma Luxon were able to join us after their serious accident, when a train they were boarding in January started to move off. The door prizes were won by the following: Rex Richards VK5DO, Murray Rogers VK5HH, Murray Nicholson VK5YN and Bronte Nitschke VK5KV.

If you would like to attend next year, the date will be Tuesday, 27 October, and if the wives of any of the OMs would also like to attend, we would be only too pleased to have you join the group of ladies who already make it an annual event.

As the September meeting focused on Jota and Aussat, the October meeting was the Display of Members' Equipment night. Unfortunately, only three members bothered to enter this year. (I don't know how many brought things in September). Keith Gooley VK5BGZ showed and described his microprocessor-controlled frequency counter, and won the ICS Award. Mark VK5AVQ brought along his auto-ranging digital voltmeter and a two-tone oscillator. Clarry VK5KL described his 50MHz pre-amp. As none of the above is a beginner in the homebrew "stakes", it was decided not to present the Millar Award this year, as it is given particularly as an encouragement award to newcomers. Our thanks to all who participated.

While I was away, the Yorke Peninsula Repeater Group has been formed, its main object being to build and locate a repeater at Lochiel. On Saturday, 26 October, under the leadership of Paul Cooper VK5AJL, they held a fund-raising day — a most successful one by all accounts. Norm VK5ZAH gave a talk on making printed circuit boards, and later, Grant VK5ZWI and Graham VK5SU gave a talk on packet radio (and how to get started in it). Steve VK5ZNJ had a "gear testing service" to test any pre-loved gear that had been bought. The organisers were very grateful to Dick Smith Electronics for attending, and also to the WIA boys who took ESC & Pubs (Equipment Supply Committee & Publications) and, last but not least, a big thank you from everyone to the ladies who provided the wonderful barbecue. Seems I missed an excellent day!

Diary Dates

Christmas Meeting — Tuesday, 10 December, Woodville Community Hall, 64c Woodville Rd, Woodville (between Port Rd and Town Hall). Meeting starts 8pm; bring your partner and a plate of supper.

The speaker will be Bob Major from the Department of Mines, who you may remember, spoke on Chernobyl earlier in the year. This time he will speak on the volcanoes of Italy, but he assures me it is more a travelogue than a geology lesson. I hope to see you there. I would like to wish everyone a happy and safe Christmas and new year.

VK6 NOTES

HARRY ATKINSON VK6WZ

Attendance was down at Hamfest last month, but the NCRG says business (amateur and commercial) was good. Displays were mounted by about half a dozen electronics firms in addition to amateur displays of ATV, digital modes, club and institute exhibits etc. NCRG officials were delighted with the generosity of trade donors of prizes for the raffles — totalling something like $3000 in retail value. The car park flea market had 21 spaces sold.

WA chapter of WICEN is to update its equipment if an application to the Lotteries Commission succeeds. If the $3000 is forthcoming, it will be matched dollar-for-dollar by the WIA, allowing WICEN to buy new HF, VHF and UHF gear and return the present equipment to its owners. The final "shopping list" will be determined by the outcome of the current local and federal WICEN reviews.

Season's greetings to all from the president and council of the WA Division.

CLUB CORNER

Radio Amateurs Old Timers Club

At the October luncheon in Melbourne, the committee election resulted as follows:

President: Alex Stewart VK3BMS, phone (03) 579 0006. Secretary/treasurer: Harold Hepburn VK3AFQ, phone (03) 596 2414. Publicity/broadcast: Allan Doble VK3AMD, phone (03) 570 4610. Past president: Ken Pincott VK3AFJ. Members: Ken Seddon VK3ACS, John Tutton VK3ZC, John Fullagher VK3AVY.

The broadcast on the first Monday of each month except January will continue at the times and frequencies shown until the return to standard times in April.

145.700MHz FM and 7.060MHz LSB 2300 Zulu

14.150MHz USB beaming north from Melbourne 2400 Zulu

14.150MHz USB beaming west from Melbourne 0100 Zulu

Contributions of interesting items for inclusion in the broadcast and/or the *OTN* journal will be very welcome indeed. The next issue of *OTN* is due in March, so articles are needed now!

And, for those members who meant to send along their $10 subscription a couple of months ago, please accept a gentle reminder. Secretary Harold would be delighted to hear from you.

73 for now and all the best for Christmas and the coming year.

ALLAN DOBLE VK3AMD

OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

Bitter Experience

This letter has been written out of sheer frustration and to forewarn others of the dangers of paying for equipment in advance, whether it be for radio or any other item.

Over the past number of months in a rival magazine a few of you may have noticed articles such as **Captain Communications are Moving" ... "Captain Faces Court Martial" and Captain Apologises.** Well, as far as the moving goes, he certainly did that, and, as for the court martial, I would have given Breaker Morant a better chance.

I don't know of anyone who was apologised to, other than via the other mag. The apology itself was worthless, as the firm is now in receivership.

Since 10 July 1991 when moneys were paid to Captain Comms who, for some eight weeks before that, had promised delivery of a couple of 2m radios, it has been nothing but an uphill struggle to get any truth from them. We paid this money in full as requested, to expedite delivery. Perhaps it was gullible to do so, but we had waited two months already.

The staff of Captain Comms not only conned others as well as myself into handing over money and equipment which has not been returned to its owners, but later requested in the other mag that people write to them as I myself had done but, unfortunately, to no avail.

The lesson to be learned here is not to pay in advance for any equipment. If it is not on the store shelf when you want it, wait until it is or just go to another supplier, no matter what other freebies you may be offered. Dishonest people will always be around to take your money and run!

JIM ZENNER VK2LJZ
PO BOX 949
BOWRAL 2576

Who Built Your Tower?

Could you please inform your readers that it has been brought to my attention recently that some amateurs have acquired what they thought was a Nally radio tower, when in fact it was not.

The Nally is a free-standing two-section wind-up tilt-over tower 13.7m (42 feet) high.

If you are going to purchase a second-hand tower, I would be pleased to help you to verify whether or not it's a Nally tower.

You can contact me on phone 018 388 959.

A D ROWE VK3KMN
NALLY RADIO TOWERS
46-48 ELLIOTT RD
DANDENONG 3175

JOTA Thank You

I am writing through *AR* to all readers who were operators at the stations on the weekend of 19-20 October 1991 for JOTA (Jamboree on the Air). A big thank you and well done to all who helped at these stations, also to AUSSAT for use of the satellite links on two metres.

Some operators had girls visit their own radio shacks, some created instant large stations in Guide and Scout halls and at camp sites; still others came along as help and support to operate these stations.

A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (N.S.W. Division) conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor
WIA
PO Box 1066
Parramatta NSW 2124
(109 Wigram Street, Parramatta)
Phone: (02) 689 2417

11am to 2pm Monday to Friday
7 to 9pm Wednesday

Approximately 46 stations in which Guides participated operated throughout Victoria. To all these people I would like to say many thanks for your time, help and support without which many girls could not have participated in this weekend.

In this modern world with so many other electronic machines available, it is gratifying to see so many Girl Guides interested in radio. They are becoming more confident in front of a microphone, and this all helps considerably with extending their personal self-confidence, which is a part of our extensive program.

To all operators and participants on behalf of the Girl Guides of Victoria, I would thank you very much for your help and participation.

ANNE WATSON
RADIO ACTIVITIES CO-ORDINATOR
GIRL GUIDES ASSOCIATION OF VICTORIA

A Kiwi in VK8

In September this year I had the pleasure of travelling by road some 8000km from Brisbane to Darwin by a most roundabout route. An experience not to be forgotten. Some of this route was with a University Continuing Education Program and some in a campervan.

What wonderful — and different — birdlife you have in both wet and dry areas. Some of the birds we soon began to recognise, but I wonder if some of your readers could please help identify one we could not see, but heard away in the distance when all was quiet, usually mid-afternoons and toward evening in isolated areas.

The call is like the sound of a flute or recorder, monotone, and about "E" or "F#". I called it the "Morse Code" bird, for that's just what it sounded like — Morse Code. On two occasions, near Elliot and Wallara, I jotted down the "call" for a few moments.

Most of my copy was like this: - - - - . - - - - - . . . - - - . . - . . . - - - - - - etc. Not much sense; what did 9 T 9 mean? Kilometres from — or to?

Then I noticed that sections of the call, over a period of time as I recorded, became recognisable, and a "message" soon became clear — the bird was learning to spell! From my jottings I "unscrambled" this message: ". . . . . ? - - - - . ?? - . - . - - - ?? . . . . . - - - - - . . - - . - - . . . - ?? - - - ? - . - . - . - :"

HI? ON?? TEN TM?? HA M, RIT?? O? TRK. (The ?s denote unrecognisable elements of the message).

Decoded, it could read:

"Hi, on to Elliot on time, Ham, right on track!"

Thus assured of my timetable and map-reading ability, I was soon at the camping ground in Elliot ... and into the pool.

Best wishes, and I like your "Tidy Town" idea.

HAROLD B MAUNDER ZL3ABW
23 BUCHANANS RD
CHRISTCHURCH 4 NZ

Titanic Radio Calls

The article by Frank Patrick VK3FJP and Q Foster (*AR* Oct '91) made great reading and revealed much about the early days.

Those of us with "black boxes", so easy to run — unlike old-time gear — (see page 7 of that issue re spark transmitters!) bear a heavy debt to the early operators for their grit and determination.

I must defend Captain Arthur Rostron of the Cunard liner "Carpathia" and its wireless operator and passengers who gave such sterling assistance in the "Titanic" disaster.

The ship which did not answer the "Titanic's" distress calls was probably the Leyland liner "Californian" (although this is still denied by some). She was stationary in ice some 10 to 19 miles away, and her radio room had been shut down shortly before the "Titanic's" distress calls. She later ignored Morse lamp signals and rockets.

The "Carpathia", 58 miles away and travelling the other way, changed course immediately upon hearing the "Titanic". One ironic fact: the "Californian" had sent urgent ice warnings to the "Titanic", but was ignored by radio operator Phillips, busy with private messages to Cape Race.

The "Titanic" struck the iceberg at 11.40pm, Sunday, 14 April 1912. At 12.05am, Captain Smith gave the order to radio operators, Jack Phillips and Harold Bride, to commence sending the distress signal.

In 1912 not many ships had wireless, and the two operators, employed by the British Marconi Company, were not part of the established shipboard chain of command. Messages to the bridge followed no routine procedure.

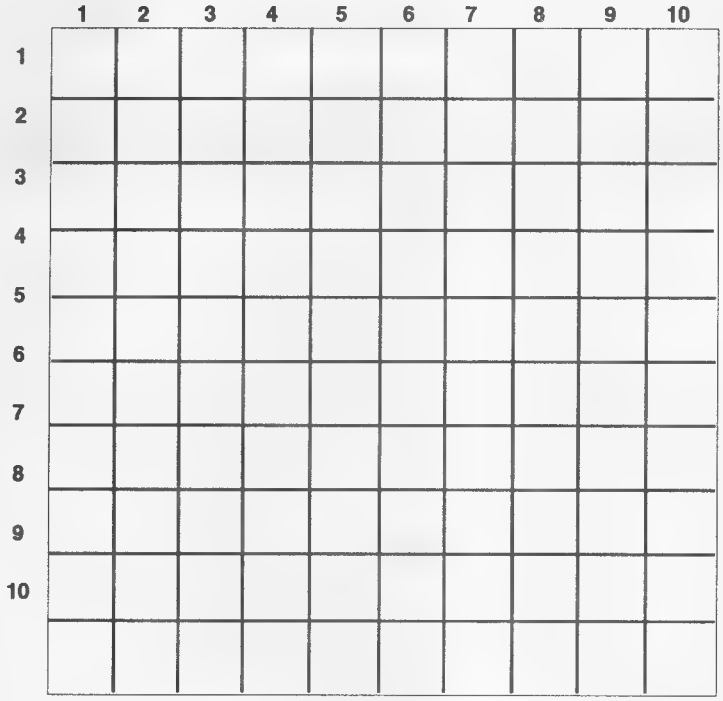
The original distress signal was "CQD", but "SOS" was also known, and the "Titanic" began sending both signals, one of the first SOS calls ever made from a ship in distress.

Several of these messages still exist; one, received about 1am, reads "SOS SOS CQD CQD we are sinking fast — passengers are being put into lifeboats".

Subsequently, regulations regarding radio watch were tightened up, although not specifically recommended by the British Board of Trade Enquiry.

Morseword No 57

Solution page 64



Across:
1 Severe
2 Namely (Latin)
3 Dirty mark
4 Bottom
5 Difficult situation
6 Fairy's tool
7 — in (betray)
8 Ins and —
9 Inter — (among others)
10 Electronic sound

Down:
1 Publicity feat
2 Warble
3 Satisfied
4 Baker
5 Stetsons
6 Picture
7 Gawk
8 Corrosion
9 Ukrainian city
10 Rescue

Audrey Ryan 1991

Thanks, Frank, for stirring up a bit of interest in our history, and especially that "Night to Remember".

IAN C GRIGGS VK2WR
88 EXCELSIOR AVE
CASTLE HILL 2154

Monopole, Not Unipole

In the October '91 edition of *AR* there was an article on a "unipole" antenna by Des Greenham VK3CO. The correct name for this antenna is a "quarter wave folded monopole". The term "unipole" is an old and out-of-favour term for an isotropic radiator. The term "monopole" has been in use in antenna engineering for some time, and I quote from the IEEE *Standard Dictionary of Electrical & Electronics Terms*.

monopole Any one of a class of antennas constructed above an imaging plane to produce a radiatio pattern approximating that of an electric dipole in the half space above the imaging plane.

If you substitute imaging plane with ground plane or radials, the above is a good description of VK3CO's antenna. By using the word "class", the definition avoids any specifics such as construction details or electrical dimensions.

To add a little linguistics to the argument, unipole is out of place. The prefixes 'mono-' and 'di-' come from the Greek, while 'uni-' and 'bi-' come from the Latin. So we have monopole and dipole antenna on one hand with unipolar and bipolar transistors on the other.

You see, I don't like loose ends; that is why I built one myself. I think I will use 10mm tubing for the driven element, as this will give a broader bandwidth.

PETER O'CONNOR VK4KIP
10 SINCLAIR ST
MOOROOKA 4105

A One-Man Team!

I cannot contain my disgust at the complete lack of consideration given the faceless other two team members who participated in the Amateur Radio Operators for Relief Work in China. P55 *AR* October 1991.

Certainly this advertisement appeared in the Hamads section of our magazine, but surely the commercial enterprise responsible could at least have had the courtesy to include the names of the other team members involved!

I am aware of one other team member, but do not know him personally, and I have no other complaint against the firm involved, therefore I have no ulterior motives in commenting on this matter. To the individual/s responsible for preparing this advertisement perhaps a revision of the meaning of the word team, and a study of the basics of common courtesy would not go astray.

ALAN CHRISTOPHER VK4VE
PO BOX 686
REDCLIFFE 4020

Re-United by Radio

They quite often say that wonders never seem to cease to happen and that probably also goes for such things as miracles!!

This "miracle" occurred a few months ago, but it took me a while to get around to relating the story to "Over to You".

First of all, I must congratulate *Amateur Radio* journal, which is more or less responsible for the result of my segment on Morse Code published in "Over to You" back in January.

Since being discharged from the army and also gaining my AOCP and licence about a year ago, I was determined to search the airwaves to make a contact with anyone of the members of my old unit, the 36 W/T Section.

I had almost given up the search when I received a letter from my former army O/C, who by chance happened to read my segment in *AR*. So my search ended after all these years of wondering whatever happened to all the members of that group. Thanks Ian Paterson VK2CJP and also Aub Miller VK2EEX for removing that cloud that has been hanging over my head for all these years! The equipment in those days was very heavy to handle, and had quite a few problems, but was a success in the long term.

BERT HARMER VK5AUS
14 SCOTT ST
SEFTON PARK 5083

PS: Members of the 36 Wireless Task Section:

Ian Paterson, Aub Miller, Bert Harmer, D Warren, M Burt, M Knowles, T Maddern, G Crook, R Grove, T Jacobson, D Matherson, V Bayley, K Dawe, K Farr, N Kingsford, P Mahony, V O'Dwyers, S Vickery (reunions are being held for 35-36-37 W/T Sections)

ar

SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES MUST BE NO LONGER THAN 200 WORDS

We regret to announce the recent passing of:

Mr D G	Finlayson	L70166
Mrs J	Davidge	VK2GI
Mr G	Van Ettekoven	VK2NX
Mr W	Miller	VK2CWM
Mrs Joy	Collis	VK2EBX
Mr R J	Edwards	VK3CZ
Mr Roy	Prowse	VK3XY
Mr R	Gorman	VK3YIB
Mr N	Gee	VK4BNG
Mr E	Pawson	VK4DEP
Mr L	Gardner	VK4FPG
Mr K	Hillyard	VK4VFG

Gerrit (Gerry) van Ettekoven VK2NX, ex VK2PTE

Gerry VK2NX passed away on Saturday, 26 October 1991, aged 62. Gerry was a foundation member of Fisher's Ghost Amateur Radio Club and has been a very active member of the club ever since.

He served as Treasurer for several years and also conducted the 10m net, including the practice Morse transmissions preceding the SSB section of the net. He was also the Morse code instructor for the club; many an amateur operator in the district owes it to Gerry for the code section of his or her licence.

Besides his activities with Fisher's Ghost, Gerry was also a very active member of the VK2 chapter of the RNARS, being a foundation member and also treasurer of that group. He spent many a Saturday at the Naval Cadets College on Snapper Island, putting the callsign VK2CC on air. He was returning home from Snapper Island at the time of his death.

He is survived by his widow Rita, and also his daughter Carol, son Robert and their families. Vale Gerry VK2NX.

FROM ARTHUR HARRIS AND ALL MEMBERS OF FISHER'S GHOST ARC

Russell John Edwards VK3CZ

Russell Edwards died 19 October 1991, aged 66 years. He was a returned soldier of the Second World War and served at Tarakan. Russell was interested in radio from boyhood days, and qualified as a radio amateur in July 1978 with the callsign of VK3CZ.

Russell was a qualified building surveyor and worked in that field for many years.

He will be sadly missed by his wife Jean and son Sterling and his many friends.

JACK FALKNER VK3EB

Graeme Whitehead VK4NYE

With regret, I record the passing of my very good friend Graeme VK4NYE on 25 August 1991. He became a quadraplegic in 1976, and derived much pleasure from amateur radio. He called the activity "the great leveller" because, while on air, his disability was not a disability. Equality and participation was his favourite theme.

He was born in Richmond, Queensland, in 1940, and was always a bushman at heart. Some of his other activities were cattle and

sheep station manager, short-story writer, announcer on 4DD-FM, and he was a Lions Club member until the time of his death. He worked very hard to get a better deal for the disabled, and achieved much.

Graeme came into amateur radio in 1982, and was a founding member of the VK4 Disabled Persons Radio Club VK4BTB, which runs under the mantle of Help Handicapped Enter Life Project, of which he was also a founding member. When he could, he shared the running of VK4 Disabled Persons Net on Friday nights.

Sincere condolences to his wife Bev, his daughter, three sons and two step-daughters. He is sadly missed.

ROLEY NORGAARD VK4AOR

Joy Collis VK2EBX

(See also ALARA Notes, page 46)

"I like amateur radio; I really think it's fine that I'll still be a YL if I live to 99. It's a satisfying hobby; it will certainly do me, 'til they write beside my name the words "Became a silent key'."

Joy VK2EBX did not live to 99 as she had hoped in her verse, but she was an active YL right up to the day her illness put her permanently to bed.

Joy was first licensed about 13 years ago and was very active on the HF bands. She took part in many worldwide nets and contests, and covered the walls of her radio shack with awards. She was always a courteous operator, but was not afraid to stand up to the OMs, if she thought they were being chauvinistic.

Joy also had other talents — she wrote poetry — and in 1983 won the Bronze Swagman Award for Bush Verse.

For many years she was the VK2 State Representative and Publicity Officer for ALARA, writing the column for *Amateur Radio*. Earlier this year she was made the first Life Member of the Orange Radio Club.

Her life reflected her strong Christian faith, and last Tuesday the little church at Yeoval was packed with friends and relatives.

Joy will be sadly missed by all who knew her.

DOROTHY BISHOP VK2DDB
VK1/2 ALARA REPRESENTATIVE

George Harvey VK3CYA

On 8 September 1991, George Harvey VK3CYA of Echuca died peacefully in the Echuca Hospital after being a quadraplegic for 27 years.

The story of George's tragic accident and his more recent involvement in amateur radio was the subject of an article in *Amateur Radio* magazine in January 1990.

George's courage and enthusiasm for life, despite his handicap, was an inspiration to many people who either met him personally or spoke to him "on air".

He held regular "skeds" with many friends, and his absence will be mourned by all.

His funeral in Echuca was attended by a large group of amateurs from far afield, and to his wife Elma and their family, we extend our sincere sympathy in the loss of a great man.

DES GREENHAM VK3CO

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BOOK REVIEW

THE ANTENNA EXPERIMENTER'S GUIDE

by Peter Dodd G3LDO

(ISBN 0-9516024-0-3)
Reviewed by Evan Jarman VK3ANI
200 pages, 120 illustrations

Price $20 plus $3 p&p. Our copy came from the author, 37 The Riding, East Preston, West Sussex BN162TW. Telephone + 44 903 770 804.

The humble antenna is the one item of common interest to all radio amateurs. It is the most easily constructed and its correct operation would have more bearing on overall success than any other item in the radio station. It is little wonder it is the most discussed, and written about, item of radio equipment.

Generally the antenna is built using an idea or design seen somewhere. It looked like a good idea, or the gain was just what was needed. It is constructed and then refined in an effort to improve what was built.

In an effort to improve the refining process by making it more systematic, the author of this book has collected various concepts to show how they benefit each other.

This is not a collection of designs. It shows how to measure some of the various parameters that define antenna performance; even provides designs for test equipment.

The book shows how some models for various antennas work. Computer programs are used to perfect, as far as possible, antenna performance before construction commences. This field can be very rewarding, and is devoid of many of the frustrations of building it first. It is quite amazing how changes in things like conductor size can affect performance. It doesn't show this completely — no book can. To truly see this you need to get your hands on a computer; but it does give you an idea of what can be done.

Theoretical antenna design is touched on. A reprint of an article in *QST* on the direct drive ring radiator is a joy for those who consider mathematics to be a tool and not something to be scared of.

The measurement and design work is complemented by a chapter on masts and materials showing what is involved in constructing your creation. Just remember: the bigger they are the harder they fall, and antennas work best when they are up in the air.

The book is rounded off with a chapter of designs of experimental antennas the author has used. It was nice to see a reference to our noble Editor as one of the sources for his ideas (*AR* October 1990).

This is not a reference book. It is a book of ideas that are meant to be put into practice. It is for those who like to experiment and know what they are doing.

The only thing I found irksome was that some measurements are marked with units and others not. I can only assume from my reading that they are all meant to be imperial. Where the inch symbol was not used I kept defaulting to millimetre (or metric) as did others when I showed them the book.

No doubt it will please many of the older operators who are used to them, but those who use metric (which is most) assume them when there is no alternative marking.

The author obviously enjoyed writing this book. It is obvious he has spent many happy hours using the concepts he explains. For those who would like to enjoy experimenting with antennas because they understand what they are doing, this is a good book.

HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES: For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

● WEATHER FAX programs for IBM XT/ATs. RADFAX2 $35, is a high resolution shortwave weatherfax, morse & RTTY receiving program. Needs CGA, SSBhf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SATFAX $45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card, & 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) & documentation, add $3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Qld 4005. Ph (07) 35 82785.

FOR SALE — NSW

● ICOM IC202 with IC3PS power supply and IC20L 10W pep amplifier satellite xtals fitted and manuals. S/No 22177, $200. Nick VK2AOH QTHR (063) 625229.

● TS130S $600. FT101E $425. KW2000 valve rig 1.8-30MHz $250. System 80 computer $100. 28MHz T/Rs $150 ea. Aircraft scanner RA-MA $125. MX100 RX.5-30MHz $65. Mobile whips 7-28MHz Hustler. Best offer all gear. VK2AJY QTHR (043) 96 4553.

● TOWER triangular self-supporting 30ft in two sections. Tilt-over. GC. $250 ono. John VK2KAV QTHR (02) 878 5958.

● NEW ZEALAND "BREAK-IN" magazines, approx 170, mostly 1967-1972. Any offers or anything to swap. Brian VK2EFD QTHR (049) 77 2178.

● KENWOOD TS440S/AT HF transceiver, still under warranty with MC-60 deck mike and Alinco power supply 30amp max, $2100. Steve VK2ASG (043) 241 74 1749 AH or (02) 565 9730 BH.

● ANTENNA SUIT ATV installation RF Industries model COL8 SN 1087 omnidirectional gain vertical tuned to 579MHz $100 plus freight ono. WARC inc, PO Box 294 Wagga 2650 or ph John VK2BXD AH (069) 25 1720.

● YAESU FL2100B amplifier 4 x 572B spare tubes, manual, vgc, $1300. Yaesu FT290R 2m all mode transceiver 30watt linear nicads mobilemount, vgc, $600. (02) 971 9795.

FOR SALE — VIC

● MICROWAVE MODULES 432MHz Linear Amp, 50w out 10w input, model MML432/50, S/No L432/502802198, $150. Gil VK3AUI QTHR (03) 808 2794.

● YAESU FT707 unused, $1200. FP700 P/S $300. FC700 ATU $250. 5 band trap vert, $75. FDK 2M FM xcvr with 4ch, $100. Galaxy V Valve HF xcvr, complete, $350. John VK3GU QTHR (051) 56 6110.

● ICOM 735 transceiver ser 01040 with AT150 auto antenna tuner, ser 01993, complete with microphone and handbooks gwo in original cartons, $1250. Stan VK3AGT QTHR (058) 58 2426 AH.

● TR10/KENWOOD TS500 & PS500 spare valves $125. Werner Wolf 10/15m 5-element duo bander $120. KENWOOD BS-5 pan adaptor for SM220 $50. RCA 6146B tubes, pair, as new $30. Chimside 2m ringo $50. 6DQ6A valves $5. Assorted valves $15. Brendan VK3KFB, 20 Leach St, Briar Hill 3088.

● YAESU FT209RH handheld transceiver sn223400 with battery pack, rubber duck antenna, trickle charger $295. Santron GT838 CB transceiver, sn00818, 40 channel, 12 volt, with mic, $45. Pair of Pioneer 40W, 8ohm 10cm dia tweeters, new, $20. VK3BKU QTHR (03) 764 4457.

● MALDOL HS260 HF/VHF SWR/Power meter 12W to 120W ranges, manual and box, ec, $50 ono. Paul VK3EPD (059) 83 1771.

● YAESU FT-480R 2m multi-mode transceiver, $450 or negotiate swap for IC551 or TS660. Chas VK3BRZ (052) 82 3167 AH Only.

● KENWOOD TS440S A/T HF txvr with mic, manual DC lead, $1595. ICOM IC2E 2M HT with battery charger, $160. Bert VK3BH QTHR (03) 857 9438.

● SPECTRUM ANALYSER HP8558B+182C to 1.5GHz, $2200. Signal Generator FM10C Singer and plug ins to 513MHz, $300. Manuals included. Bearcat 220 scanner, $50. All units operating but collecting dust! David VK3YIZ (03) 718 2293.

● YAESU FT620B 6m SSB rig C/W mic, AC/DC pwr leads and 50MHz band xtal, $375. YAESU FT901DM FV901DM combo. Rig has mem option fitted and VFO has 40 mems, C/W YD-148 desk mic and all leads. Top DXing rig, $900. TOKYO HY-POWER HL110V 2m linear 2.5/10W in gives 120W output. Built-in RF amp, $425. Delivery to Melb city area no problem. I will haggle on prices. Bert VK3TU (052) 78 2374 AH.

● YAESU FT1000 top of the range txcvr, immac cond, hardly used, 200W output BPF-1 fitted for dual band receive MD1 desk mic as new in boxes, $4500 ono. (054) 22 3985.

FOR SALE — QLD

● VARIAC VARIABLE TRANSFORMER 500W cat/no 273-9504 input 240V output 0/260V 2.5 amps. Micronta lab instrument, $140. Freight extra. Barrie VK4LN QTHR (074) 82 2675.

● OSCILLOSCOPE SOLARTRON type CT436 dual beam 6MHz $200. Belden RF bridge, $25. Heathkit PSU 0-30Volt 1amp, $25. Heathkit audio generator $35. Two video cameras, monochorme, one without lens, $35 ea. Frequency counter 500MHz home brew, $180. Norm VK4ZFQ not QTHR (077) 79 4641.

● YAESU FT747GX serial no OE320030 10 months old, hardly used, $950. Manual and original carton. Brian VK4BOW (077) 86 2367 home (077) 86 2108, fax (077) 86 1815.

● TEKTRONICS CRO model 524AD serial 006531 working $50. Bill VK4WO QTHR (07) 359 8808.

FOR SALE — SA

● ATN LOG PERIODIC ant good cond $700 ono. VK5RI QTHR (088) 93 4001.

● YAESU FT101E HF txvr with manual, new finals, ec, sn7G280503 $450 ono. Michael VK5CK (085) 84 1354 AH, (085) 84 7101 BH.

● DRAKE TR4C transceiver s/n41213, A-4 power supply & RV5C external VFO 260W 80-10m, ec, $650 ono. Heath DX40 transmitter and VF-1 ext VFO 70W 160-10m, 1957 vintage wireless, $120 ono. Doc VK5HP (086) 45 4971, (086) 45 4168.

FOR SALE — WA

● NEW MATCHED PAIR 8950 tx valves, cost $126, sell $90 post free VK area. VK6CH (09) 377 1283.

● KENWOOD 530S $575. Kenwood antenna tuner AT230, $380. One 50ft wind-up mast with quad and rotator, $365. Prices neg. (09) 277 9284.

FOR SALE — TAS

● SONY ICF2001D World Band Receiver. Current model covers SW, MW, FM & aircraft bands, cost $900, sell $650. Also 2 active antennas, Techniloop 3 to suit Sony $160 ono. Deceased estate. (003) 44 4333 or (003) 27 2256.

● SATELLITE TNC/Modems package, TNC320 and ext 1200PSK and 9600FSK G3RUH modems in case with power supply. All new. TNC320 does HF & VHF packet, also includes cables to radio and computer, $720. Dennis VK7YAO (002) 24 0518.

● MFJ-1278 DATA CONTROLLER S/No 3017730 with multi-grey level modem for SSTV/FAX and 2400bps modem. Includes "Multicom" software for IBM PC, cables and manuals $600 ono. Damien Vale VK7CDI (003) 26 0410 BH, (003) 95 4153 AH.

WANTED — ACT

● BOOK "Practical Television Circuits", 2nd edition, by REF Street, Newnes 1968. Also 1st edition, FJ Camm. J Weaver, PO Box 398, Woden ACT 2606.

WANTED — NSW

● VALVES 6146 6146B 6883 6LQ6 6MJ6 6JE6C Atlas transceiver, any model, any cond, details to VK2DMS QTHR (066) 53 2463 or (02) 567 4560.

● HF 7.0 to 30MHz RF RX preamp. 440-450MHz T/R valves or transistors. VK2AJY QTHR (043) 96 4553.

● TUNING DIAL for Johnson Viking Ranger transmitter, also need operating & service manual. Brian VK2EFD QTHR (049) 77 2178.

● MANUALS INFO CIRCUITS extras to suit Drake R-4 HF receiver. Wayne (067) 47 4636 Box 187, Quirindi NSW 2343.

● ATLAS TRANSCEIVER, any model, any cond. Valves 6883 (12v 6146) 6146 6146B. VK2DMS QTHR (066) 53 2463 or (02) 567 4560.

● HIGH GAIN TH3JR beam, balun, cable & rotator to suit, to be A1 cond. VK2FFA Peter (043) 24 4160.

● COPY OF CIRCUIT diagram and details of YAESU FL DX400 HF transmitter. Will pay all costs. Jim VK2AJT QTHR (044) 21 2786.

WANTED — VIC

● COLLINS 30S1, will pay top price for linear in gc. Roth VK3BG (03) 725 3550.

● CIRCUIT DIAGRAMS or manuals for Rangemaster FM25H, made by Rangemaster Equipment in Brisbane. Any info would be welcomed. Brett VK3JHP QTHR (03) 584 4230.

● YAESU FT747 HF xcvr, details to Ron VK3OM QTHR (059) 44 3019.

● AMATEUR RADIO MAGAZINE August 1985 and January 1986 issues, will pay current rate as well as postage. Ray VK3MBU QTHR (051) 74 1181.

● FL2100Z AMP or equivalent. Must be in good work cond. Prepared to pay up to $700. (03) 547 0910.

WANTED — QUEENSLAND

● KEY TO FIT Philips FM828 mounting bracket. David VK4DJC (079) 38 1263.

● CIRCUIT of ANTENNA TUNER for FR7700. Will pay for copying costs etc. Murray VK4AOK QTHR (07) 379 7815.

● CIRCUIT DIAGRAMS & information for a Tamaphone radio telephone, 6ch model T-462MX transceiver. Reasonable cost paid. VK4CEM QTHR (079) 78 3430.

● TRACTOR UNIT for Epson LX 80 printer, must be good usable cond. Price to VK4KAL QTHR (079) 85 4168 any time.

WANTED — SA

● 14MHz TIP FOR HUSTLER mobile antenna. VK5BHH Hank (085) 37 0255.

6M BASE RIG; 204BA HF Yagi; homebrew HF linears, basket cases or not; Heathkit coax switch; old bug keys; tubes 3/300, 2.5/300, 3.5/750 and ceramic sockets; Icom 720; Yaesu FT830S. "Doc" c/- VK5BWR Whyalla ARC (086) 45 4971 BH, (086) 45 4168 AH.

WANTED — TAS

● ICs RTL 14 pin DIL, new or on old computer boards. Motorola MC700P or MC800P series. 3.6V supply rail. EGS MC880P, MC890P, MC889P, MC817P, MC891P, MC8918P, MC892P, MC888P, MC824P, MC825P, CμL9960, Fairchild MC1013P, CμL9959 Fairchild. MC1035, MC1026. Any help would be appreciated. Trevor VK7TB QTHR (003) 24 4289 BH, (003) 98 2118 AH, fax (003) 26 5039.

STOLEN EQUIPMENT

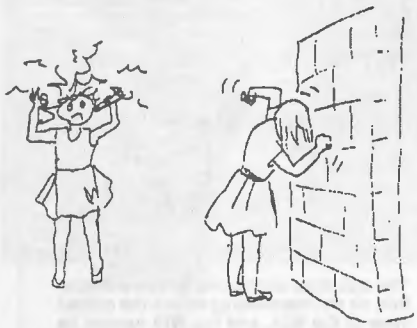
Stolen from P Overton VK2OG, 32 Fuchsia Cres, Quakers Hill 2763 on 8 October 1991: One Icom IC-02AT handheld, ser 406070630.

Stolen from Fiona Carmichael, PO Box 397, Mentone 3194, May 1991: President HR2510 ser 95000177.

Stolen from Cliff Bastin VK6 Div WIA President VK6LZ, 28 October 1991: Kenwood TR2500 2m HH ser 4101224.

Stolen from Christine Bastin VK6ZLZ, 28 October 1991: Kenwood TR2500 2m HH ser 4030422.

Stolen from VK6ID, 25 August 1991: Kenwood TS440S ser 7031310. Two x Philips UHF CB HH, model SXA (ch17 & 20). Two x Philips UHF CB HH, model 323 (ch17 and 20). King Air aircraft band transceiver. Realistic scanning Rx with BNC socket.



Sally Grattidge VK4MDG gives her artistic impression of the difficulties of getting the WIA Slow Morse Transmissions correctly published in AR.

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines per issue free to all WIA members, ninth line for name and address
Commercial rates apply for non—members. Please enclose a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge — $25.00 pre—payable.

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Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name:..... Call Sign: ..... Address: .....

Solution to Morseword No 57
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	1	2	3	4	5	6	7	8	9	10
1	•	•	—	—	—	•	•	•	—	•
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TRADE PRACTICES ACT
It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

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Fill out the following form and send to:

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Wireless Institute of Australia
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Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms: .....

.....

Call Sign (if applicable): .....

Address: .....

.....

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State and Postcode: .....

WIA Slow Morse Transmissions

VK2BWI nightly at 0930 UTC on 3550 kHz

VK2RCW Continuous on 3699kHz and 144.950MHz 5wpm, 8wpm, 12wpm

VK3RCW Continuous on 144.950MHz 5wpm, 10wpm

VK4WIT Monday at 0930 UTC on 3535kHz

VK4WCH Wednesday at 0930 UTC (0830 UTC daylight saving) on 3535kHz

VK4AV Thursday at 0930 UTC on 3535kHz

VK4WIS Sunday at 0930 UTC (0830 UTC daylight saving) on 3535kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555MHz

The Tradition Continues...

YAESU FT-990 HF ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000... and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.

2 YEAR WARRANTY!

Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be..... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
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Convenience Features

- A highly efficient AC switch-mode power supply is built-in! It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF shift, IF notch, IF bandwidth and SCF audio controls.
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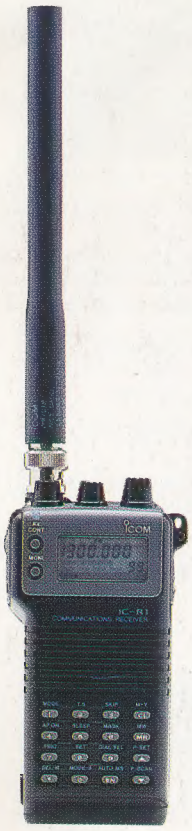

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